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EXPLANATION OF THE PLATES.

The first Plate presents a Portrait of Mr. W. R. Grinnell's prize colt, CHAMPION, three years old, by ALMAC—he by Mambrino.

The second Plate.—The second represents, as will be seen, analytical sections of mould-boards of the East-Lothian, Mid-Lothian, Berwickshire and the Lanarkshire Plows—being illustrations of Stephens's Book of the Farm.

FARMERS' CLUBS.

RULES FOR THEIR ORGANIZATION AND GOVERNMENT; WITH SUGGESTIONS AS TO THEIR OBJECTS AND MANNER OF PROCEEDING.

WE have long been persuaded that these Clubs, holding monthly meetings for free and familiar discussion, when well and judiciously conducted, are better calculated for the increase of agricultural knowledge and, of course, for the promotion of agricultural prosperity, than are our *Annual Fairs;* for which much time and expense are appropriated by those who contribute to them, and which, when the year rolls round, come and vanish, very much like "trials of speed," leaving time scarcely sufficient, among the thousands who are brought together, for a day, even to exchange salutations—much less to exchange information, and so acquire and impart a better knowledge of the various branches of their common pursuit.

The chief benefit of a show is the opportunity of letting those who go, see what are the qualities of the various breeds of domestic animals, and, by the display of the best specimens, evince the degree of excellence which may be attained in the cultivation of fruits and vegetables by superior care and intelligence. And still farther are they useful in this: that some are prompted to buy and take into their counties and neighborhoods specimens of superior animals for the improvement of the neighborhood stock; but it sometimes happens, unfortunately, that these purchases of large, sleek, fat-looking animals, captivating to *the eye*, are made without judgment or reference to the particular resources and circumstances of the region to which they are carried; and thus may mischief, instead of benefit, ensue the most patriotic and well-meant designs of the purchasers. One farther remark here may not be out of place: In the States south of New-York and Pennsylvania, if a man buys, no matter at what cost, a male animal of the choicest blood and qualities, his neighbors are apt to think him churlish and mean if he does not allow the free use of him to all who choose to send, if indeed they do not expect the animal *to be sent to them!* This is one of the

evils that sometimes come out of good. It is an abuse of a commendable trait—an injudicious exercise of a hospitable and generous temper characteristic of the people of that section. Now, where an opulent farmer chooses to buy and make an out-and-out present of a costly animal to a Society or a neighborhood, that's very well—as the French say, *une autre chose*. We would like to be among the first and the loudest in applause of such munificence on the part of those who can afford it. Heartily do we wish we could see a little more of it; but observation has shown that where a man gets choice animals, cattle, or sheep, or hogs, and then lets any mean or miserly neighbor have the free use of them, exchanging evenly, for instance his choice Leicester or South-Down lambs for common ones, those who thus get easily into the blood, set very little store to it. Like woman's love, what is lightly got is lightly valued; and thus the race soon degenerates, and steady, progressive improvement, which should be the object of all, is sacrificed to gratify a mean spirit on the one side, and good nature, and too often a low spirited thirst for vulgar popularity on the other.

It is not by cheapening anything really excellent of its kind that melioration is secured. It has not been by such a system of making good things common, that the progress of improvement has been kept up in England without abatement for the last hundred years. It was not under the influence of any such slip-shod, careless, mistaken system of liberality that, in August last, JONAS WEBB, the great South-Down breeder in England, had at his annual *letting* of rams some "250 noblemen, gentlemen and agriculturists," on which occasion one ram was *hired for the season* at $250; and the first sixty, let *by the season* to the highest bidders, at an average of $80.

But to return to Cattle Shows as compared to Farmers' Clubs. The former are highly useful in the lights and for the objects we have mentioned. But they are far more liable to abuse and perversion than *Clubs for discussion;* and when intrigue and management supervene, and the people begin to see that "kissing goes by favor," ill blood and disgust soon take the place of patriotic exertion and honorable and generous rivalry. There is, however, no human institution or enterprise that is not obnoxious to some objection or abuse; and all we can do is to endeavor to eschew the evil, and to keep the right constantly in view.

Of one thing we respectfully think we may hazard a word of suggestion: that agricultural papers, especially, would best promote the valuable objects of these exhibitions by a severe, though just and impartial criticism, rather than by indiscriminate praise of everything that is exhibited, of every thing that is said, and every thing that is done! Especially should they reprobate all low, mercenary, underhanded attempts to bias the minds of judges for awarding premiums; and yet more the parceling out of premiums, here and there, on objects devoid of any extraordinary excellence, scattering the funds of the Association as so many seeds from which to gather a rotten harvest of ill-grounded and ephemeral popularity. We have known, for example, resolutions of thanks to be passed complimenting a Mayor and the citizens of a town for their hospitality, when at that very meeting, a wealthy and hospitable Member of Congress coming from a great distance, President of an Agricultural Society at home, and introduced as such, sat up all the first night after his arrival, by the tavern fire; and the next night was forced to leave at 9 o'clock for want of a bed. And at another town, mors recently, hotel charges were enhanced, for the occasion, practicing on strangers from foreign territories and distant States the most shameful rapacity. So we repeat, that praise, to be useful, should not be indiscriminate.

So much for *Agricultural and other Fairs*—to which we are not to be suspected of entertaining any hostility, for we caused many to be gotten up before some of those, if any there be, who would harbor the mean suspicion, were old enough to know "a B from a bull's foot." After all, *Farmers' Clubs*, instead of being opposed, are *eminently subsidiary* to Annual Fairs; and those who are impressed, like our correspondent, with a sense of their usefulness and good tendency in an intellectual point of view—the only view in which almost anything is worthy of regard—will rejoice with us to see how they are extending throughout the country; so much so that we hope it will not be thought that the space is ill employed which is here appropriated, perhaps once for all, to this subject.

A Farmers' Club, or rather an Agricultural Society which practically assumed the more useful character of a Farmers' Club, has been steadily maintained in Talbot County, Maryland, for now twenty years or more, and its good effects are visible, not only on the face of the country around, but in the fine spirit, intelligence and correspondence of those who are connected with it, or who live and practice Agriculture within the sphere of its influence; for in all such cases, though these Associations depend upon a few to form and keep them up, the benefits, as respects information and improvements in processes and implements, accrue to the whole county, and often extend beyond its limits.

If farmers were half as watchful of their own welfare as other classes are, there would not be an election district in any State in the Union without one of these Clubs; and all would form a common League for common action when needed. Erratic and desultory as discussions at some of them are apt to be, coming at last to no specific resolution, to be published as the result of them, they yet serve to elicit and diffuse much valuable information.

In the deliberations of these Societies and Institutes, formed by the various trades and pursuits *in the cities*, almost all measures for their peculiar benefit and monopoly, have their origin. They are not content even with collecting libraries, causing lectures to be delivered, holding exhibitions and offering premiums to further and to illustrate the progress of improvement in their several arts and vocations. They go farther: they interpret the wishes, make known the wants, expose the wrongs and vindicate and assert, before the sovereign power of the country, the rights of the entire body for whose benefit, as a class, they have been organized. They constitute, in a word, not mere *talking*, but active working Societies, bringing their united talents and influence to bear, promptly and efficiently, on the law-making power, for their own peculiar advantages; while, with shame be it written, farmers are too inert or too timid, to examine, criticise, and boldly arraign and denounce, as they should, where needed, all public measures and acts of omisson as well as of commission, on the part of men in authority, calculated injuriously to affect them. Alas! they seem, in too many cases, to be devoid of the common instinct of self defence. They will scarcely turn when trodden upon. Else how is it that they will submit to go on being taxed, year after year, thousands on thousands, for military schools, maps, charts, surveys, voyages of discovery and journals of travel over sea and land, "mountain and valley;" and yet not demand one dollar for *direct instruction in Agriculture!* Well we know what the answer will be: We do not choose to be considered ignorant of the fact that voyages of discovery and explorations through unknown regions of land and water *may* open up new sources of trade and commerce: and so by possibility ultimately benefit Agriculture; but we *know* that Agriculture would be very soon, and throughout the whole nation, benefited by schools which

should instruct the rising generations in the reason and philosophy of everything on which agricultural labor, and capital, and mind are brought to operate and to depend for prosperity and enjoyment. The solemn fact, however, is, that agriculturists are so *spread over the whole country*, that they can hardly be said to constitute a *class*, for any efficient action useful to themselves, and hence there is none of that personal sympathy for them, in public bodies, that there is for those who constitute more distinct, well-defined and privileged classes and branches of industry. Thus it is, will the reader believe it, that it was not until comparatively very lately, that in Congress, or State Legislatures, any Committees have been appointed on the *great business and concern of the nation!* And even now their appointment is, in most cases, rather a matter of form and *humbuggery*, than for any real service they are intended to do or actually do perform! Who can point us to any of their Reports on the condition and wants of this great fountain of national wealth and power?

Propose a law that affects the navigation class, or the mercantile class, and some Chamber of Commerce is perpetually sitting in its midst, like a great spider in the center of his web. The least breath of harm reaches him, as news is conveyed by the telegraph, and wakes him up in a spirit of determined resistance to the first approach or sign of aggression. So with the Army and the Navy; not a Member of Congress whose personal feelings may not be enlisted through sympathy with some member or some influential constituent nearly connected with some member of the profession. Every proposition which in any way affects particular classes becomes the personal concern and commands the personal interposition of every member of that class. How different with the great body of farmers, who are, in fact, *the people!* Their business, their welfare, their rights, as far as they are to be affected by the action of Government, are left to the care of everybody and of nobody—the result whereof need hardly be told. There is an old song which runs—

"I care for nobody, no, not I, for nobody cares for me."

Farmers, as a class, might with truth sing—"Nobody cares for us, no, not they, for we—*don't care for ourselves!*"

Not so will it be, may we not hope, when Farmers' Schools and Farmers' Clubs shall come to be established wherever population is sufficiently dense to admit of it, and when these, acting with sound understanding, and in concert, for the *good of the land*, shall *teach men in power* that Agriculture, "the nursing mother of all the arts," is, of all human concerns, that which should command their first and most anxious care and devotion.

Here, for example, the following advertisement catches our eye, in a morning paper, and even before they break their fast, will probably have been read by thirty thousand, at least, of those for whose benefit these Institutes are gotten up:

☞ **Mechanics' Institute Lectures.**—Professor HUMR's Introductory Lecture to his Course on Experimental Chemistry, as applied to Arts and Manufactures, will be given on Wednesday evening, 11th inst. at 8 o'clock, in the Institute Lecture Room, City Hall.

The Course will comprise one of the most useful and practical series of experiments in Chemical Science ever presented to the public. In connection with this Course will be one on the Steam Engine, illustrated by one of the largest Didactic Models in the country; and also one on Astronomy and Mechanical Philosophy.

Season tickets $3; single Lectures 25 cents. To members of the Institute free. Terms of membership, $1 initiation and $2 yearly dues. Rights and privileges of a member: Ownership in all property, use of reading-rooms and library, free admission to all lectures, and a discount from regular charges to non-members, of 20 to 100 per cent. in the schools and classes. Minors under 18 can have yearly privileges for only $1.

For season tickets or membership, apply at the Institute Rooms, City Hall.

By order of Lecture Committee.
CHARLES L. BARRITT, Actuary.

Among the unread (for want of time) pamphlets on our table, is an Address by Rev. Albert Gallatin Palmer, delivered before "*The Mechanics' and Working-*

Men's Literary Association of Stonington, Ct.," and we could name a list a yard long of such Associations of classes of people, of all pursuits, except that of Agriculture, who have their libraries, their lectures and their laboratories. Farmers! can you think of these things and not rouse up from your Rip Van Winkle lethargy? Do you wonder that not only the capital but the *elite* of the young men of the country, should concentrate in the towns, where, owing to superior enterprise, so many aids are provided for sharpening the intellect and preparing it to cut its way through every obstacle to competence and distinction? Rouse up, then! if not for your own sakes, for the *sake of your sons*—those who inherit your name and your blood. As for giving them money—base lucre!—consider it but as trash, when contrasted with inherent personal capacity for self support and usefulness to the country. How many of them fool away inherited fortunes! How few even of the largest estates descend to the third or even to the second generation! How much oftener large expectancies enervate and ruin than invigorate, and elevate, and bless those on whom they descend! *Give them knowledge, give them character, and you give them the best sort of estate.* Let us quote a passage from a noble address which we read last night after ten, and then retired deeply impressed with admiration of the author and his sentiments:

"I repeat it, I know no more honorable object for a right-minded farmer to propose to himself, than to teach his sons, by economy, and by improvements learned by experiment and observation, or from books, each to get a comfortable living on his portion of the paternal acres; just as the Roman farmer, in the classical story, portioned off one daughter after another on a full share of his vineyard, reserving for himself only as much as he gave to each one, and yet continued to produce just as much as when he possessed the whole. Such a farmer is a good economist; he is laying up the best resource for his old age, in keeping his children about him, with their affectionate society. He is a good parent, for he provides for those who look to him the best chances of respectability and happiness. He is a good patriot, for he does his part toward making the community stable, well ordered, prosperous, and safe."

In the author* of such noble thoughts, now, we believe, elected to Congress, the plow will have at least one honest, earnest advocate. Let us hope he may be put on the Agricultural Committee.

But we could not, in any language of our own, describe in fewer words, or so well, the utility and the objects of such Clubs, as we find it done to our hand:

"By means of these institutions much valuable information is diffused, different modes of cultivation are compared and their results ascertained, improvements are suggested and made public, and the interchange of thoughts, opinions and observations promotes good feeling, and in various ways exercises a beneficial influence. Among the objects sought to be obtained by Farmers' Clubs are the following: To ascertain the nature and qualities of the soils and subsoils of the district; to inquire into the comparative value of different sorts of manures; to test by experiments alleged improvements in cultivation, in agricultural implements, or in the management of stock; to discover the most profitable varieties in corn, seeds, or roots, and the most advantageous rotation of crops; to collect information respecting the state and progress of Agriculture, by correspondence, by the establishment of agricultural libraries, and by such other means as may be deemed expedient; in a word, *to advance the interests of Agriculture in every possible way*—reducing theory to practice, and throwing the light of knowledge and science over the most useful and important of the arts of life."

Now, the probability is, that most of those who read this will say—'Yes, doubtless, it's all very well; but how are we to go about putting your advice into force? What can *I* do toward it?'—Hold on, reader, and we will tell you; for our aim has ever been, in our humble way, not to amuse our readers with some humbug of the moment, as children are amused by tying on a string and letting

* John G. Palfrey, of Cambridge, Mass.

fly a June-bug or a kite; but rather to bring our suggestions to some practical and useful bearing. We therefore recommend that any young farmer or planter, wishing to be of some use in his day and generation, transcribe the following rules, and as he meets one neighbor and another, get them to sign, agree to meet at a convenient place, his own or some neighbor's house, or neighboring village, and there at once *commence* the organization of a Club. Five or six will be sufficient to form a beginning. We merely give these rules as we find them at hand; they may be modified according to circumstances. In another place, in subsequent numbers, if not in this, we will respectfully suggest some questions, and chalk out some work for these Clubs when formed:

RULES.

1. That the officers of this Club shall consist of a Chairman, Secretary (who shall also act as Treasurer), and a Committee of five members, all of whom shall be elected annually. Five of the Committee, including the Secretary, to form a quorum.

2. That at each meeting the authority of the Chairman upon all disputed matters shall be final.

3. That it shall be the duty of the Secretary to receive the subscriptions, to keep the accounts of the Society, and also of the books in circulation.

4. That it shall be the duty of the Committee, in the absence of the Chairman, to elect a Deputy Chairman, to take care that at each meeting a subject be proposed for discussion at the succeeding one, and to decide upon all matters connected with the business of the Club.

5. That any person wishing to become a member of this Club must be proposed by one member and seconded by another, when he may be elected by a show of hands.

6. That the annual subscription payable by each member shall be $1 50, which sum shall be paid in advance.

7. That the Club shall meet on the last Saturday in each month.

8. That the Chairman shall take the chair at 3 o'clock, and any business of the Society shall be first transacted; after which he shall call upon the member introducing the subject for that evening, the discussion upon which shall be terminated by 8 o'clock at the latest; and all questions upon which it may be necessary to come to a division shall be decided by a majority of votes.

9. That there shall be no forfeits for non-attendance.

10. That the first meeting of the Club shall be held at, &c. &c.

11. That the annual meeting for choosing the officers, and auditing the accounts, shall be held in January.

12. That all party politics and questions shall be totally excluded from the discussions of this Society.

13. That the books purchased by this Society shall be confined to agricultural and horticultural works, the price of which shall not exceed the existing funds of the Club.

14. That it shall be competent for any member to propose the purchase of a work which, if seconded, shall be ordered or refused by a show of hands.

15. That all arrangements regarding the books shall be decided by the Committee.

16. That any member may introduce a friend; but no person residing within ten miles of the place of meeting shall be introduced more than once as a non-subscriber. Such visitor shall be at liberty to take a part in the debate, but not to vote on the subject.

17. That any member wishing to effect an alteration in the above rules shall give notice in writing to the Secretary of his intention at one meeting, who shall propose it at the next, when it shall be determined upon by vote.

Let us here make a few observations on the above rules. We doubt the necessity, in the first place, of a special Committee of five particular members, being persuaded that as these meetings are to be but once a month, all business might be transacted in a Committee of the whole body present; only providing for the number necessary to form a quorum and transact business. A man of judgment, having witnessed the operation of these rules, and being asked whether in his opinion it would be better to hold these meetings at farmers' houses, combining with them a series of monthly dinners, replied substantially that he thought it would be better to meet, after an early dinner at home, at some county town, or central village, or cross-roads, convenient to the majority of the members. Taking dinner at one, they might assemble at the distance of ten miles, and be in session at 3 o'clock. Where they meet to dine with each other, a very ridiculous and absurd rivalry soon ensues, originating, as they pretend, with their wives, but generally winked at by themselves—to see who shall give, not the

most plain and simple, and therefore the best; but the most luxurious and extravagant, and therefore the worst and the most unsuitable and out-of-place sort of dinner that could be set before sensible men professing to be in search of the best means of *enlightening the minds and bettering the condition of themselves and their children.* What do such men, if men of hard, solid sense, animated by the true and appropriate feelings, care about Julienne soup, soft crabs sent for to a market ten miles off; for fish *hollandese sauce*, and the various rich and luxurious dishes spread upon the *table d'hôte* of a fashionable hotel, such as Mitchell's U. S. Hotel, Philadelphia—such as *lapereau roti; canards aux navets; ris de veau, aux epinards; cotellettes de mouton, sauce hashee; pigeeons roti; poulets, grillée; des huitres, a la poulet; tete de veau, sauce cerville; fricandeau de veau, Madere sauce*, and *poulets a la provencale!* In lieu of all these, would not any sensible man, on such an occasion, be much better pleased to be interrupted only while he might take a slice of nice cold corned beef (the plate), such as Col. Jack T. or J. G. D. of Baltimore, knew so well how to choose, and to cure, and to *cook afterward!* But besides the fact that these convivial dinners are apt to degenerate into sensual and extravagant indulgences, pleasant enough, we do not deny, in their way and with certain appliances, but not suited to the main purposes of such Associations, they are, in fact, ill adapted to them in various ways. They are too much and too long confined to the *same persons*, and do not admit of extension; or when extended by invitation, they are made to embrace, for the most part, those who are already the most zealous and the best informed, whereas the object should be, as the true desideratum is, to draw into the vortex of these Clubs and absorb the *most lukewarm and the least enlightened.* "They that are whole have no need of the physician, but they that are sick: I came not to call the righteous, but sinners, to repentance."

While memory holds her seat, we should be the last to undervalue the social enjoyments of these reünions of farmers at each other's houses, to discuss agricultural questions, especially such as are submitted to *the Board*, after undergoing the revision of the good housewife. Especially shall we always remember the fun and frolic of the mind and spirits we ever had in view; the *baiting* as well as the debating that awaited us when we repaired on the appointed day to persuade our old friend, the Treasurer, to go into the country, to which he never failed to yield, but always with pretended reluctance. Who of that joyous party has forgotten how at Hayfields we called upon him, and how he rose and let out kink after kink, until presently he stood up in all his hight and animation, in fervid reply to Governor Barbour's Speech at the christening of the La Fayette Tankard, filled for the occasion with mint julep of John Merryman's inimitable compounding? Ah! those were truly times of genuine hospitality and good cheer and good fellowship to be remembered.

> "Care, mad to see a man sae happy,
> E'en drowned himself amang the nappy;
> As bees flee hame wi' lades o' treasure,
> The minutes winged their way wi' pleasure."

Alas!—but we are *out of the latitude!* and so to return to the practical operation and influences of such Clubs, we respectfully suggest that a short account of what is elicited by the debate, particularly as regards any striking facts brought to light, ought to be drawn out by the Secretary and offered for publication to the nearest village paper. Beyond all dispute, all papers read before such Clubs or Societies should be open and accessible to all Editors who choose to make them

public. To lock them up as soon as read, among their archives, or to keep them exclusively for their own use, or for any partial purpose, or for publication with a view to sale, would be totally incompatible with the true and proper spirit and objects of such Associations. Such a narrow course of proceeding will never be countenanced by any liberal minded friend of the cause. Again, a question may arise whether the subject for discussion should be given out, month by month, one month beforehand, or whether it would not be better to have one for each month, agreed upon in the beginning of the year, so that there would be ample time to make observation and trial of manures, animals, implements and processes with a view to the question being *well discussed and settled.* For example, at a meeting in January, twelve questions are decided on, one for each month. When that for February is disposed of, another may be propounded to take its place the ensuing February, and so through the year, twelve months, being always on hand for inquiry, research, and experiment. If any particular subject should present itself, seeming to demand more immediate investigation, an intermediate special meeting might be called for its consideration. These, however, are matters of detail to be arranged by each Club, and are only mentioned as seeming to be likely to arise and to be worthy of early attention among the few who, in the beginning, must always be relied on to bring such Associations into existence. Until farmers can feel interest enough in their calling to assist in their formation, and to enter with spirit into their design and proceedings, they must be content to play second fiddle to other and subordinate pursuits, that live on their substance; and would do well to own at once that they are devoting their lives to an unworthy, spiritless and submissive calling; that, in fact, they have no profession, and are willing to lay down their necks to be trodden upon by those who have more forethought and sagacity; and a higher spirit and determination to take care of themselves.

To give an idea of questions discussed at these Clubs, we copy the first at hand, as having been the subjects of deliberation at the last twelve monthly meetings of a Society whose proceedings are most conveniently within reach:

QUESTIONS.

The use of saltpetre as a manure.
The use of gypsum as a manure.
On the comparative advantages of using fermented or unfermented manures.
On the management, and cheapest method of keeping cart horses.
On spade husbandry.
On the best method of improving the breed of neat cattle in this district.
On stall feeding.
On the best plan of keeping farming accounts.
On the advantages of cutting hay into chaff.
On the turnip fly.
On the effect of soil on manures.
On the selection of seed wheat, and the best method of steeping and planting it, &c. &c.

The writer from whom we have already quoted to impress in more forcible terms our own ideas as to the objects and the usefulness of these Clubs, makes another remark to which we would *especially invite the attention of every parent farmer in the United States*, and if we could, we would make it a part of his grace, to be said daily "before meat:"

"THERE IS ANOTHER POINT I MIGHT NAME, WHICH IS, THAT POINTING OUT TO THE FATHERS THE ADVANTAGES WHICH SCIENCE MAY CONFER ON AGRICULTURE, BUT WHICH THEIR OWN EDUCATION HAS GIVEN THEM LITTLE OR NO TASTE TO FOLLOW UP, MORE READILY INDUCES THEM TO PUT THEIR SONS IN THE WAY OF RECEIVING A MORE LIBERAL INSTRUCTION, BETTER SUITED TO THE ALTERED SITUATIONS THEY MAY BE CALLED UPON TO FULFILL; AND THERE IS NOTHING TENDING TO THE PROGRESSION OF AGRICULTURE FROM WHICH I AUGUR HAPPIER RESULTS, THAN FROM GIVING A BETTER EDUCATION—AN EDUCATION SPECIALLY DIRECTED TO THEIR FUTURE EMPLOYMENT—TO THE RISING GENERATION OF FARMERS."

Finally, we must close these remarks on Farmers' Clubs, which have been drawn out by our anxieties, as usual, to a greater length than the reader may be

willing to excuse. We will make but one more suggestion: these discussions should be entered upon, not in an idle, ridiculous, slip-shod, frivolous manner, but *after due and suitable inquiry and reflection.* "Whatsoever thy hand findeth to do, do it with thy might; for there is no work, nor device, nor knowledge, nor wisdom in the grave, whither thou goest," says the proverb. What is known or conjectured should be imparted in the plainest possible style, and in the *briefest* manner, consistently with perspicuity. Some men cover up and obscure what is obvious, by too much explanation; some are so fond of hearing themselves talk, and so apt to conceit that what *they* say is new and impressive, that they go on talking, *ad infinitum*, about matters and things in general. No encouragement should be given either to the overweening conceit of some or to empty garrulity of others. The men among farmers who most need to be enticed to give in their experience, are often those whose experience is most worth knowing. With the careful—we were going to say conscientious—preparation for the subject, such as we have suggested, in a spirit of decent respect for the grave and important objects of such Associations, almost every question might be so far considered and exhausted as to enable the Club to come, at the close of each session, to a conclusion on the subject, and to the passage of a *resolution* which should embrace and express, as far as that question is involved, and as it involves the interests of Agriculture, the opinion of a decided majority of the Club; and these resolutions should be invariably and widely published for information and criticism. This would be less necessary if farmers could be sure of seeing the full debates, because then they might judge for themselves. We will give, for example, a few of the resolutions, such as may be called the *denouement* or practical result of such discussions, in Clubs whose proceedings are before us. It is in this way that we would urge all our Farmers' Clubs to bring their debates to what we would call a practical bearing, one that *means something.* For instance, the question discussed was, "THE VARIOUS MANURES AND THEIR APPLICATION."

The gentleman who introduced this important question arranged the subject under three heads, viz., organic manures, or such as are of animal and vegetable origin; inorganic, as the earths, &c.; and saline, or artificial manures. After explaining with great clearness the nature and properties of each, their adaptation to particular crops, and the fittest time for applying them, the speaker proceeded to mention the superiority of *farm-yard manure* above all others as the staple commodity upon which the British farmer must mainly depend; because, first, the elements of such manure, when decomposed, become the natural food of plants; second, the variety of these elements makes it serviceable to all kinds of vegetables; third, that when seasons are not favorable to the full development of the powers of farm-yard manure, yet it is neither lost nor proves injurious, as is frequently the case with saline or artificial manures; fourth, that common practical experience enables a farmer to use it safely and advantageously, which cannot be said of some of the earths and artificial manures, which in many cases are positively injurious; and, lastly, that it is the most economical of all others, requiring little more than labor for its due preparation.

The observations of the speaker, which evinced great intelligence, were listened to with more than ordinary attention, and gave rise to an animated and interesting discussion. At a subsequent meeting the following resolution, embodying the views of the members of the Club upon the question, was unanimously agreed to, viz.:

Resolution.—"The subject of the nature and properties of the different manures, &c. having received the fullest consideration of the members present, they are unanimously of opinion that among all the various manures none can be so safely depended upon as well prepared farm-yard manure, both as regards certainty in respect to the produce, on an average of crops, and on the score of economy as regards expense. That this opinion, which has been held by the best practical agriculturists in all ages, is fully borne out in this district by the individual experience of the members present. That the true interest of the British farmer is to husband his home resources; and to that end his best attention should be devoted to the due preparation of farm-yard manures, so as to produce the best quality and the greatest quantity. That, although the members are fully sensible of the great value of many artificial manures, yet they consider such ought not to be depended upon as principals, but only to be used as auxiliaries whenever a deficiency of farm-yard manure exists, or local circumstances point out the propriety of their employment."

It would be impossible in a standard work like this, to give a sketch of the debates and proceedings of any of the thousand Clubs that we hope yet to live to see come into existence; but where they bring their discussions, in this way, to something tangible, we shall endeavor to chronicle them, as an abstract of the agricultural information of the present day, and the conclusions at which men have arrived who have most earnestly and with the best lights at command, studied subjects of most frequent occurrence and of the greatest general importance. We have applied to the President of the New-York Farmers' Club, which with force and zeal meets bi-monthly at the office of the American Institute, for a list merely of the questions discussed and the conclusions arrived at, for any given time back that it may be convenient to supply, as well for the intrinsic worth of these conclusions, as to give an idea of the scope and utility of these Associations. We learn by the papers that the New-York Agricultural Association has put forth a collection of the papers read before it, and anticipate much satisfaction in the perusal of them, when we can get a copy. From some account of a paper from Doctor Stevens, on the Supply of Plants with Moisture, by force of capillary attraction, in dry weather, we are persuaded we shall find its suggestions of much value, as we should expect from anything he would offer.

N. B. Questions before these Clubs should be restricted to some tangible, specific forms and objects. Sometimes they are so general as to amount to pretty much the same as if you were to ask a man "What do you think of matters and things in general?"

For the subjects discussed in the New-York Farmers' Club, the reader is referred to the following:

Subjects discussed before the Farmers' Club of the American Institute, from November, 1845, to November, 1846, inclusive—Meetings semi-monthly.

Marls.
State Bounties on Silk.
Care of Cattle in Winter, and the best kinds of Mulberry for our climate.
Care of Cattle, continued, with the Cutting of Wood for Fuel and Timber.
Extra Meeting.—Same subject continued.
Green Crops for Manure.
Culture and Manufacture of Flax.
Culture of Flax and Hemp, and their Manufacture in the United States.
Pruning of Fruit-Trees and the Care of Cattle, especially Cows.
Pruning of Fruit-Trees and the Care of Cattle, continued.
Same subject continued; with the Pruning of Grape Vines.
Extra Meeting.—Pruning of Fruit-Trees and Grape Vines, and Care of Cattle.
Cultivation of the Grape, and the Keeping of Cattle.
Same subject continued.
Keeping of Cattle and the Culture of Silk.
Extra Meeting.—Same subject continued.
Culture of Silk; also, Indian Corn—the best kinds and best modes of flouring it for food.
Indian Corn—its Cultivation, &c. continued.
Culture and Preservation of Corn; together with Insects Injurious to Vegetation.
Insects Injurious to Vegetation; with the Curing of Hay.
Insects Injurious to Vegetation.
Same subject continued.
Culture of the Turnip—its Various Kinds, and the Insects which attack it.
Domestic Wines; and the Root Crops for Cattle.
Domestic Wines; and the Preservation of Fruit.
Preservation of Fruit and Vegetables.
No meeting in October, on account of the Fair.
The Noxious Influences of the Fires and Gases of Brick Kilns on Fruits and Vegetation.

☞ Nine or ten Sheep of the Leicester Breed, imported from England by Hon. Henry Clay, passed through Pittsburgh a few days since, on their way to Ashland, under charge of a shepherd who came with them.

REMARKABLE DISCOVERY.

MODE OF KNOWING THE QUALITIES OF MILCH COWS, BY EXTERNAL SIGNS.

If there was any one thing which, more than any other, we determined from the commencement to avoid, in the management of this journal, it was that of *flying kites* for the amusement of our readers—exciting false hopes by proclaiming wonderful discoveries, and panaceas for agricultural complaints, contrary to the laws of reason and Nature. Such tricks sometimes serve for a while to keep up a factitious excitement, until, vanishing into "thin air," one after another, their aggregate nothingness at last strikes the public mind, dissipates all confidence, and leaves for the wonder-workers, inventors of crude machines, and compounders of nostrums, little else but ridicule or contempt.

It was in this cautious spirit that we announced the extraordinary discovery of M. Guenon, the son of a French gardener, by which he undertook, after more than twenty years of close observation and study, by examination of visible external marks, to pronounce with certainty on the *milking qualities of cows.*

Although we had unbounded confidence in the fidelity of the learned translator of the work, (Mr. Trist,) and the highest respect for his judgment, so far as that was staked or made up on his own observation, in favor of the truth of M. Guenon's system, still we ventured only to say that it "was maintained" that, by the signs laid down, "one may without fail discover, even in a calf a few months old, whether it will make a good milker;" adding, "strange as may appear such a discovery, it yet *seems* to have been subjected, in many cases, to the severest test." And then we proceeded to give the proofs. These consisted mainly in very explicit statements and certificates by Committees of various Agricultural Societies in France, from which the following are extracts.

The Agricultural Society of Toulouse report:

"We conducted M. Guénon into *seven* cow-stables, with which he was entirely unacquainted. Here forty-six cows were submitted to his inspection. In twenty-two instances he named the exact number of pints given by each cow; in fourteen he came within a pint, and in ten within two or three pints. But the main fact of the discovery we consider as established, as Monsieur Guénon *invariably* distinguishes the good from the bad milkers.—From this fact, with which the Committee was much struck, there results the consequence that *there is really an existing relation* between the milking properties and the visible external signs or escutcheons indicated. The Committee consider as a vast service rendered to Agriculture, a discovery which has taught us to distinguish good from bad milkers; and it is the greater as the system applies to calves, and thus enables us to discard, by handing over to the butcher, worthless heifers that we would otherwise be at the expense of rearing."

Again: *The Agricultural Society of Bordeaux* appointed a Committee, of whom the Veterinary Professor of the Department was one, and in a very special and particular report, after putting the author and his system through the closest possible examination, (as may be seen at large in Vol. I. of this Journal,) they say, in so many words, to the Society: "*This system, gentlemen, we do not fear to say is infallible.*"

Again: A Committee was appointed by the *Agricultural Society of Aurillac.* their report will be found as follows:

"Yesterday, the 25th of May, M. Guenon arrived at Aurillac, and immediately proceeded with the members of your Committee to the *Veyrac* farm, belonging to the President of the Society. He examined with the utmost care the fine cow-stable of that domain, which embraces one hundred cows, of the best varieties that we possess. He then began his experiments upon a number of cows which were presented to him, and which had designedly been selected from among the best, the moderately good, and the most indifferent of the establishment. Upon each of these separately, M. Guénon pronounced with precision, both in regard to her daily yield of milk, and to the time during which she continued to give milk after being got with calf."

When JENNER commenced his examinations concerning the cow-pox in England, in 1776, it was at first treated by the physicians as unworthy of attention, and twenty years elapsed before it gained credence to be introduced in the public hospitals. "It was," says the French Committee, "after more than twenty years of observations and researches, that M. GUENON succeeded at length in discovering certain natural and positive signs, which constitute the basis of his method—a method *henceforward proof against all error*." The famous Tyrian purple was produced from an *animal juice*, discovered by accident in a fish's shell.

Reflecting on the singularity and the importance of this discovery, especially to dairy husbandmen, (and, indeed, to the poorest man keeping a single cow,) founded, as it is, on observations of certain phenomena observable on that portion of the cow's frame appropriated as the depository of the milky secretions—a certain difference being there observable, not only in the direction of the growth of the hair, but in what is called the dandruf, or scurf, at the roots of the hair—it occurred to us as having some analogical support in the admitted effect of a *different secretion*, the presence or the absence of which is seen and acknowledged to produce a very marked difference between the entire and the mutilated male, and that as well in the human race as with birds and animals: a difference not confined to the form and size of particular parts of the body, as the head and neck, but extending to the color and the voice, and even to a striking modification of the moral qualities, in man and beast.

How unlike the roar and fierce spirit of the bull are the squeaking voice and docile temper of his brother, the ox—the hair on the forehead of the one *curling* like the grain of the gnarled oak, while the face of the other is mild and smooth as a young heifer's. Behold the gallant "cock of the walk," strutting erect and bold, the very emblem of courage and chivalry; while his caponized brother creeps along on the outskirts of the dunghill, humble and crest-fallen, looking as if ashamed to be seen, without voice to crow defiance or spirit to resist an insult! See, again, how this hideous calamity transforms, in moral and physical character, the wretched human victim of Turkish cruelty. Take away the fountain of that noble passion which, more than any other, leads men to the performance of great actions, and his very fibres and muscles are seen to lose their elasticity; his throat contracts, and he acquires the physiognomy and the voice of a woman. From being brave and generous, he becomes intellectually feeble, cowardly, morose and cruel. Even his *beard* ceases to grow; while, strange to say, on women, this operation, which, according to ancient historians, was by no means uncommon among the Greeks, had quite an opposite effect—since, though it extinguished the sexual appetite, and the bosom disappeared, the voice became harsh and masculine, and the beard appeared on the chin and upper lip. Who would know, *a fortiori*, or without a series of observations, for instance, that leaving a horse in his natural condition would enlarge his neck and *thicken and elongate the hair* of his mane and tail? Now are not all these obvious effects, resulting, as will be admitted on all hands, from the presence or withdrawal of a

certain secretion, quite as strange, and as remarkable in themselves, if we were not so familiar with them, as the signs and escutcheons, consisting in a difference in the growth of the hair on the milk region of the cow, systematized by M. Guénon, after twenty years of study? There are such qualities as ignorance, self-conceit and obstinacy, as well as gullibility. The most casual observer, as he walks along, may see on any cow that these marks do exist and differ greatly in different individuals; the only question is of *their connection* with the milking properties of the animal.

Unfortunately, of all the people in the world, Americans are the most difficult to be prevailed upon to be patient, and quietly take systematic observations to arrive at an uncertain fact or a distant object. They are ever on the *qui vive* for change—expecting to go to-morrow, or next year at farthest, either into another State, or into—*an office!* They "never are, but always to be blest." Hence, says Mr. Colman, it is characteristic of a Yankee to rush diagonally across the street, being too impatient to wait to reach the corner, where he may pass with cleaner foot on the flag-stones.

We have been hoping, nevertheless, that some gentleman would take the pains to give the Frenchman's system a *full and careful trial.* The cause of truth in such cases is not served by anybody's conceits, and conjectures, and suppositions. All these one man may hazard as well as another. The public want opinions which are deduced from well-conducted, well-attested experiments; otherwise it is like the doctor who prescribes without taking the trouble to learn the exact symptoms of the case. We had casually heard that a few had made sufficient observations to satisfy them that there was foundation for the theory; so that hereafter they would have no fear of buying a cow worthless as a milker; and we took the liberty, which we hope they will excuse, of referring to them in our last number. To these we may now add the name of Mr. COLT, of Paterson, New-Jersey. Still we apprehend that very few have thoroughly, and in many instances, first carefully studied the system, as laid down in the MONTHLY JOURNAL OF AGRICULTURE, and in the "Cow-Book," and then applied it so as to speak with precision and confidence.

We have now, however, the pleasure to submit the following letter, just received, and which we hand to the printer for the benefit of our readers—word for word, and letter for letter—from one among the most *intelligent, trustworthy and respectable practical farmers* in the State of Massachusetts. It will be seen that it is in answer to a letter from the Editor of THE FARMERS' LIBRARY, which he was prompted to write from hearing the facts detailed in it, or some of them, mentioned publicly by the writer at the late Worcester Cattle Show. It is probable that since then Mr. Brooks may have taken care to ratify his previous impressions by farther trials. Let us ask if any examinations of a single person could be more conclusive? Yet his testimony is more than borne out by that of the several Committees of different Agricultural Societies, based on investigations conducted with great care, and m a great number of cases, and with precautions to guard against the possibility of mistake or deception. To these we have already referred, giving brief extracts, but the whole reports are worthy of being read.

Some have, as we think with more squeamishness than good sense, objected to the *nature of the engravings* which make a part of the Cow-Book; but, if that be not the suggestion of mock-modesty, we should be glad to be informed how else it was possible to spread, far and wide, such an explanation of the system,

true or false, as would enable the plainest farmer to judge for himself? The celebrated "JOHN RANDOLPH of Roanoke" once complained to us, as Editor of the old Turf Register and Sporting Magazine, for having allowed a correspondent to use the phrase, *sired*—"Black Maria was *sired* by Eclipse," instead of "*got* by Eclipse,"—saying it would be quite as well to say that she was "*dam'd* by Lady Lightfoot;" and then told the story of a certain old maid in Virginia who was so fastidious that she always called a certain old coin, that some of our readers may remember, a *water*-reen!

At all events, the publishers were at a heavy expense in having these engravings prepared for the Journal; and we had the satisfaction, when they presented M. Guénon's discovery for sale for the merest trifle, in pamphlet form, to attach to it other matter worth the full price of the whole; so that no one was obliged to buy in the first place, and, if he did, could not fail to get his penny worth.—After all, does not this letter of Mr. BROOKS settle the question? May it not now, in M. GUENON's own tongue, be considered *un fait accompli?*

PRINCETON, Mass., October 15, 1846.

Dear Sir: I received your favor of the 8th inst. desiring me to state my opinion of the value of M. GUENON's *Treatise on Milch Cows*, translated from the French, and published in THE FARMERS' LIBRARY. On my first meeting with this Treatise, I was so impressed with its value, from my previous knowledge of some general marks whereby the milking properties of cows may, in some measure, be determined, and from the fact that I had myself noticed the oval marks above the hind teats, mentioned by M. Guénon as indicating good milking qualities, that I immediately commenced the study and application of his method to every cow that came under my observation. I have examined more than one hundred cows, and after carefully marking their escutcheons, I have become satisfied that M. Guénon's discovery is one of great merit, and can be relied upon as true. I have no doubt that I can judge very nearly as to the quantity and quality of the milk any cow will give at the hight of her flow, and also the time she will continue in milk after being with calf.

The way taken to convince myself of the truth of M. Guénon's method has been to visit the cow-yards of some of our principal dairy-farmers, and examine the escutcheons and marks on their cows, and make up my judgment as to the quantity and quality of milk each cow would give at the hight of her flow, and how long she would continue in milk after being with calf; then inquire of the owners how much milk their several cows would give at the hight of their flow, and how long they would hold out after being with calf; comparing the owner's account with my own judgment. I find I have been mistaken in only five cases, out of more than one hundred examined.

I have great confidence in M. Guénon's method of testing the milking properties of cows, and consider it one of the great discoveries of the age. The advantage of this discovery to our dairy farmers, enabling them, as I think it does, to determine the milking properties of their young stock at an early age, must be very great, and will be appreciated by every one who is in the slightest degree acquainted with the subject. In my opinion, no dairy farmer, after acquainting himself with M. Guénon's discovery, need possess himself of a bad milking cow.

M. Guénon informs us that his system is applicable to calves three or four months old. I have traced the escutcheons upon calves as early as two or three weeks old, and I see no reason why their value as future milkers may not be judged of at this age as well as at any other age.

Yours respectfully, JOHN BROOKS.

To J. S. SKINNER, Esq., Editor of The Farmers' Library, New-York City.

A VISIT TO THE FARMER OF MARSHFIELD.

WITH SOME ACCOUNT OF HIS FARM MANAGEMENT.

We had once the pleasure of making a visit to this man of gigantic mind, among his turnips and his cattle, a day's journey from Boston down on the sea-board, in sight of Plymouth Rock. The pilotage of a brace of good friends—their odd jokes and rare stories causing the sides to split with laughter on the way—and all attendant circumstances, to its close, conspire to mark this visit to "black Dan" as one among the many green spots in the so far bygone journey of life—the onward view of which is, alas! rather *dry* and sterile to look upon, without even what the farmers call a "*wet* cloud," promising refreshing showers.

As to the Farmer of Marshfield, we have our doubts whether any man who has so completely within his grasp the most glorious and covetable of all triumphs, the triumphs of intellect, and all the pleasures that wait on the command of every social enjoyment, ever more eagerly and heartily withdrew from them all, to the more quiet and careless exercises and amusements of rural life, than does the "great Expounder," when he can get away from Boston to the sea-shore. In his fondness for Agriculture, there is nothing of idleness or affectation. Of this we can judge and may speak from what we have heard and what we have seen.

At home or abroad, in country or city, Mr. Webster is habitually an early riser. At Marshfield, his early walks are to look at his stables—his horses, his cattle, his sheep, ay, and his ducks and geese, as they play on the bosom of an artificial lake near his residence. Sometimes he takes a gun or a line, and with these fetches down a duck or lands a fish for his guests' breakfast, while they lie snoring in their beds.

His cattle, more especially his oxen, and the young things bred on the farm, seem to attract his particular regards. On the occasion referred to he could boast the largest and the best field of *ruta bagas* in all the Bay State. In a very plain, strong buggy wagon, we traversed his 1200 acres before breakfast, taking one elevated point of view that commands a prospect of the whole farm, and of the waters of the dark blue sea, spread out in the limitless and unruffled expanse of a calm and delightful "summer's morning." On its shores we remember to have seen, for the first time, that remarkable substance called *kelp*—the more remarkable when used as a manure, in that while it has been proved in Scotland to equal barn-yard manure in several experiments, on turnips and other crops, like plaster of Paris, its efficacy seems to bear no proportion to the quantity used. On the contrary, although it appears to have largely contributed to the increase of crops, that increase has been greatest where the smallest quantity has been used.—"From the quantity of alkali which it contains," says a writer on the subject, "it may naturally be expected to operate by rendering the animal and vegetable matter soluble and a fit food for plants; but, from a series of facts which have been noticed, kelp would seem to possess other qualities as a manure."

At a fishing lodge on a creek which meanders through Marshfield, near its entrance to the ocean, Mr. Webster keeps his boats, and all the tackle and appliances constantly in order for his favorite diversion—being, to all seeming, a more willing disciple of "Sir Isaac," than of "Sir Edward." There you find his rods,

lines, winces, floats, hooks, nuts, plummets, baiting needles, disgorgers, cleaning ring, split shot, pliers for putting them on line, caps for float, kettle for bait, India rubber, thumb winder, shoemaker's wax, bit of soft leather, and pocket-book of fishing tackle, with reel to hold lines, and his hooks 'of sizes;' and then, as for cooking the fish on the shore, when it *is* caught, he has few rivals, especially in the *chowder line*. But, returning to his *penchant* for Agriculture, and talking of fish, considering how much he must have been engrossed in England in seeing and being seen by the "big fish" of that wonderful nation, it is wonderful to those with whom that homely subject is a favorite topic of inquiry, how familiar he had managed to make himself with the *great branches of her Agriculture*, and es pecially with all the modern inventions and resources to which recourse has been had, of late years, for the prodigious improvements in that great art, and by which they have been enabled, until now, to keep pace with their prodigious increase of population. On these leading points in the progress of agricultural industry he discourses not so much in detail as he does philosophically. But that every one knows to be the character of his mind. He likes to reach after the bottom of things!

His guests, on their arrival within his gates, are shown, after what we are told is the English fashion—and what we are sure must be everywhere a good one—at once to their apartments, which are *their own* for the nonce; and are at once and very quietly made to feel "*at home.*" If, after that, from day to day, inclination does not invite, or the weather forbids, them to go abroad, through garden or grounds, why there is the delightful resource of a noble library, teeming with choicest editions of works in all the departments of literature, and all so well and beautifully printed and bound as that the very handling is a luxury.

We know very well that, in alluding thus to a gentleman's personal and domestic habits in retirement, we rather invade a sanctuary that should be inviolate; still it is one of the penalties to which extraordinary men have to submit, and it may even be not without its moral bearing, should they happen to learn that the public will be curious about their incomings and their outgoings.

We had entertained some hope of hearing from a friend of Mr. W., yclept Jo. Sykes, something like a systematic account of the economy and management practiced at Marshfield, but fear he has been lost in the fog or the mountains.

Mr. W.'s stables are so peculiarly constructed that, while all the liquid manure passes freely through, to be absorbed by the compost below, the floors are always dry, and moreover admit of being easily taken up and replaced, as occasion may require.

A large proportion of the estate, as its name imports, consists of *salt marsh*, yielding heavy crops of coarsish hay, used for cattle, and forming a great resource for making manure. Under some immemorial custom that, being curious, we would like, if we could, to explain, the surrounding farmers, even from a great distance, drive down to this immense salt meadow, and, without a word to any one, fall to cutting and curing hay, and, when they have finished, leave one-half stacked on the ground for the proprietor, and bear off the other without let or hindrance. Whether this right or privilege is inheritable, or under what limitations and restrictions they enjoy it, we know not. It seems to be an antiquated right or custom, handed down, along with their blue stockings and big buckles, as we guess, from the days of the Puritans. We sometimes almost wish that everything else had remained as unchangeable, except that of *riding on bulls*, as old John Alden rode to that same Cape to be married, on one of the descendants

of the bull and three heifers imported by Governor Winslow, in the good ship Charity, in 1624.

Speaking of big fish and of English Agriculture, our honest but rather crusty old friend, JOHN BULL, must begin to have a high notion of the *agronomical* talents and capabilities of his daughter, America, from the impressions which appear to have been made by her *three successive Ministers*. We, who notice such things, used to admire how Mr. EVERETT made the old gentleman *roar*, at his agricultural festivals, to which the American Minister seemed always a welcome if not a favorite guest. And Mr. STEVENSON, before him, was not slow in getting into the old gentleman's good graces. But in easy and graceful, not to say somewhat self-confident manner, and in fresh appearance and manly bearing, Mr. S. might well pass for one of John's own get; and, as John Bull is well known not to be deficient in the conservative virtue of self-esteem, Mr. S. got along famously with the great English farmers, titled and untitled, and brought away with him, as we happen to know, not only the high esteem of the crack men, but the best sheep of the crack flocks, of the kingdom—even of that great South-Down prize breeder, Mr. Webb. Moreover, in hunting and shooting, over brook and through briar, with his Virginia horsemanship and dexterity, Mr. S. could not fail to *shoot ahead* in the regards of a people who pass so much of their time in the noble exercises of the field and the luxurious enjoyments, both of sense and intellect, for which such exercises furnish the keenest zest. And then last we sent to them again Mr. MCLANE, a very zealous inquirer into the principles of Agriculture, and being, too, like his immediate predecessor, a constant reader of *this journal*, we are bound to suppose him to be a good *practical farmer!*—He had only to bind up, on this second visit, what he had before gathered of John's partiality. We know he was on the most friendly footing with some of the most opulent and best English agriculturists, and familiar with Ruffin's great essay on "calcareous manures," with which he plied them, so that some of them will no longer inquire, "What American has written a book?" But of him it should be enough, if he had done nothing more, to say, "Blessed are the peacemakers!" though, in our republican country, neither Franklin, nor Godfrey, nor Rittenhouse, nor Whitney, nor Fulton, nor Clinton, would stand any chance against a man in regimentals, who could prove that he pointed a gun that killed forty men at one discharge!

And now, in respect of the following letter, we confess to the weakness of a pride in having our labors for the greatest and the most neglected interest of the country well thought of by men of eminent usefulness and ability; but, truth to tell, we should not have so much valued the following voluntary offering of approbation, coming from Mr. WEBSTER the statesman, or the politician, (for with politics we have nothing to do,) nor even from him as a dilettante farmer; but we do value, and venture to record it, as from a man of profound sense in all things to which he gives his mind; and we have long known it to be addicted, with unfeigned predilection, to *Agriculture*.

NEW-YORK, November 4, 1846.

Dear Sir: I have looked through the 4th and 5th numbers of the current volume of THE FARMERS' LIBRARY, and I think I ought to take this occasion to express my sense of the value of the whole work. Its plan is comprehensive and excellent, and the execution thus far successfully carried out. In my opinion, the work ought to be distributed by the various Agricultural Societies, to the end that practical knowledge may be diffused, and a spirit of inquiry and improvement awakened among young farmers.

There are two things which you appear to bear in mind, and which I think of great im-

portance. The first is, that, as you republish largely from European writers, your readers should be constantly reminded that differences of climate and soil demand, always, with us, well considered modifications of European practice in most branches of Agriculture. A too close imitation of the modes adopted in other countries would often be quite injurious here. In addition to differences of soil and climate, the higher rate of wages which, fortunately for the general good, exists with us, must itself make a material change in all agricultural calculations.

The second thing which I would presume to suggest is, the importance of laying your stores of information before your readers in the plainest possible language. Many valuable treatises are, to general readers, nothing but a sealed book, from the use of technical words and phrases. I may say this without disrespect to the intelligence or learning of farmers in general, since it is certainly my own case. Scientific works on Agriculture must be abridged, explained, interpreted, translated out of technical language into our common mother tongue, or else their utility must always be in a great degree lost to the great body of actual farmers. Most of us are not chemists, for instance, and do not understand the technical language of that science; and the improvements in Agriculture, which are every day resulting from chemical experiments, should be so stated, if possible, as that all may understand and apply them.

With the best wishes for the continued success of your valuable labors, I am, dear sir,

Your obedient servant, DAN. WEBSTER.

JNO. S. SKINNER, Esq.

AMERICAN AGRICULTURISTS.

THEIR "PASSIVE SUBMISSION AND NON-RESISTANCE" TO POLITICAL IMPOSITIONS.

WE take pleasure in calling the attention of every friend of the agricultural interest, in the Union, to the following Memorial, now being circulated through the country for signature, and for presentation to the Legislatures of the several States.

It is to be hoped that it will find a place in all agricultural and other papers friendly to the landed interest, and that all Agricultural Societies and Farmers' Clubs will take it in hand and promote its success, as a measure of *practical service to the interest they represent.*

To every movement there must be a beginning; and, surely, it is time that agriculturists were moving in good earnest for some share of that patronage and protection so freely bestowed on other classes, unless, indeed, they are sleeping the sleep of death!

On this topic of general concern, at least, all may unite, heart and hand, without respect of *parties.*

When manufacturers conceive their interests are about to be assailed by public measures, see, no matter to what party or branch of manufactures they belong, how they *all* rush together into one compact mass, with all their backs up and purses open, like a herd of wild hogs in the woods, at the squeal of the smallest suckling among them—the old boar pointing the wedge, in the programme of defence, supported on all sides by the fiercest and strongest of his companions.

Even the cattle teach us a lesson of common fellowship and self-protection; for, let but an old cow snuff one drop of the spilt blood of her kind, and the alarm is instantly sounded, and you will see the whole drove come together, bellowing and raving mad! And shall we fall behind the very beasts of the field in fellow

feeling, self-respect and self-protection, imitating only that meekest of them all which stands quietly to be sheared? See, in England, at the sound of a single voice, how the *free traders* met, again and again—subscribed their thousands and their tens of thousands; how they sent in memorial after memorial, and agitated and agitated, until they carried their point, and rewarded their great advocate with a donation of $360,000! Here, in our country, we have schools properly provided for the Army and the Navy; Observatories to survey the heavens; Light-houses to guide the mariner; and Telegraphs to convey information, even quicker than light itself, between speculators and merchants embodied in cities, giving them the first warning, from one end of the Continent to the other, of all changes in the value of agricultural products; all this under control of the Government, and avowedly to collect and diffuse information to and among other classes, whose employment and subsistence is derived from the *fruits of agricultural labor and the products of the earth;* and can nothing be done by this *people's* Government to enlighten and prosper those who *toil at the plow?*

Is this our boasted Government of the people, powerful in all else, and powerless only when the people call for a share of the common treasure?

But what said Hercules to the wagoner imploring his assistance? If men wish to be helped, they must first learn to help themselves. Farmers, you have the power of numbers, the power of productive labor, the claim of much the greatest contribution to the national means; you have all sorts of power and all sorts of title to superior influence in the Government on your side, *except* the power of *knowledge and of enterprise;* and there *you are beaten by every class of society!* Look at your relative numbers. *Persons engaged in learned professions*, 65,255; in internal navigation, 33,076; in navigating the ocean, 56,021; in manufactures, 791,749; in commerce, 117,607; in *Agriculture*, 3,719,951.

Then look again at the *value* of the *annual products of your industry*, constituting the solid wealth of the nation, inasmuch as it affords subsistence to the whole population of the country, and the means of increasing its population and power; and as it furnishes the subject and elements of employment and subsistence to *every other class.* Look, we repeat, at its annual value—$654,387,579! being more than the value of the annual products from *manufactures, commerce, mining, forests and fisheries, all united.* And yet, would you believe it? until a comparatively recent date, neither the National nor State Legislatures have paid to you the compliment of even *appointing Committees* on a concern thus transcending in itself *the aggregates of all others!* Nay, it is even doubtful whether some of the State Legislatures go through that formality even to the present day. They and the National Legislature have *working* Committees on Elections, on Commerce, on Manufactures, on Finance, on Grievances and Courts of Justice—on everything that wears any appearance or pretension of a public interest—but where do you find the Reports of Committees in exposition of the *wants, grievances, condition and claims of Agriculture?*—of its comparative contributions and its right to a distributive share of the public treasure so freely parceled out for other classes and objects? True, Committees on Agriculture have sometimes been appointed of late years, but, hearing nothing from their constituents, they naturally conclude that all idea on their part, if they ever had any, of any claim on the attention of the Government, has become an "obsolete idea;" and so, when called on for their Reports, the return of the Agricultural Committee is—*non est inventus*—no such interests to be found! *Let this memorial, then, give them something to do*—for again it may be asked, Who ever were helped—who

ever deserved to be helped—that had not the energy and courage to help themselves.

Farmers, you have, both in and out of Congress, numbers and power on your side. All you want is self-respect—respect for your own rights—energy—combination. On this one subject, then, *be persuaded to lay aside party spirit.*—Move in a body—make yourselves heard—and you will soon cause yourselves to be *felt.* Who will begin the work? Rely on it that knowledge—*knowledge* is at the bottom of every valuable progressive and enduring improvement in the condition of mankind. Your Government is expending *your* money to give knowledge, and to throw light, and to insure safety and honor to every concern of life except yours. Why, then, may you not demand *something* for the dissemination of knowledge in the sciences, on the application of which the fruitfulness of the earth depends, as much as does success in any other profession, art or manufacture? Next, then, after your prayer to "our Father who art in Heaven," repeat you the prayer of the victorious warrior on the walls of Troy—"*Ye Gods, give us but light!*" and they who, in the halls of power, shall first hearken to your righteous demands, shall be registered and remembered as the grateful benefactors of those to whom they owe their elevated and glorious trust—glorious, if wisely executed for the welfare of society.

For one, at least, among the humblest of their constituents, we shall watch to denounce or to bless. We crave the assistance of the press—that powerful lever which, in swaying public sentiment, sways the world. Proud will we be to take the lowest rank, and to raise even the feeblest voice in an enterprise commended by every consideration of beneficence and public usefulness, to every sound head and every honest heart.

MEMORIAL

From the Agriculturists of the United States to their respective State Legislatures.

THE undersigned, on behalf of the agricultural interest, to which they belong, beg leave to request your attention to what they feel to be their just, but too long neglected claim on the General Government.

Not wishing to deal in vague generalities, the measure we solicit is that you would urge our Representatives and Senators in Congress to use their influence to *procure an appropriation from the proceeds of the public lands, or from the general treasure, for the use of each State, in proportion to its representation in Congress, to be applied, in each State, expressly to the establishment of a* NORMAL SCHOOL, *for the instruction and preparation of teachers in agricultural chemistry, mineralogy, vegetable and animal physiology, civil engineering, rural architecture, and practical surveying*—in such arts and sciences, in a word, as will enlighten practical Agriculture, and render more efficient and profitable the capital and labor employed in it. Teachers thus prepared would be ready to take charge of minor agricultural schools, in each county in every State of the Union; and thus would the foundation be laid for spreading among the mass of the people a knowledge of those sciences, on the application of which, according to the opinion of the ablest writers of the age, "Agriculture must hereafter depend for all material improvements."

In the name of justice to the landed interest, and in anticipation of objections as to *want of means or power*, the undersigned would refer to the very large expenditures under all administrations, not only for the establishment of naval and military academies and schools, and the publication of surveys, maps, and journals, without number, of military officers, exploring sea and land, but to the boundless acquisition of foreign territory, by acts of Congress. We may also refer to large and repeated appropriations, not merely for the establishment of Observatories, and lines of Telegraph, under the control of the General Government,

but to an object strictly analogous to the one we seek, to wit, the *annual Agricultural Reports from the Patent-Office.*

All these appropriations of the public money—chiefly, it is true, as connected with the military operations of the Government—have been avowedly for the purpose of collecting and distributing warlike or other information.

These facts and considerations induce your memorialists to hope that Congress will not now refuse to the people a portion of their own money, for the purpose of providing within each State, conformably with its own policy, institutions and courses of industry, schools for the instruction, also, of the *rising generation of planters and farmers* in the *principles* of that great pursuit which has been well pronounced "the nursing mother of *all the arts*,"—a pursuit upon which Congressional Reports, useful though they be in their way, can yet throw but the partial light of facts and statements promiscuously gathered up, not always well digested, and, after all, distributed or not, according to the individual pleasure and discretion of Members of Congress.

For the warlike machinery and purposes of this Republican Government, embracing the objects above referred to, *several hundred millions* of dollars have been expended since our last war with a trans Atlantic power; and this enormous expenditure has really been collected, in *very large proportion*, from the landed interest, since it is that class which has chiefly consumed the imports on which the revenue has been levied.

Your memorialists are far from repining at the liberal pay, life commissions, certain promotion, pensions, residences, hospitals, schools and academies built, provided, and kept up, at the public expense, for the two military branches of the Government; but they humbly think that the time has arrived when the people, the yeomanry of the country—those by whose toil its solid wealth is dug out of the ground—may inquire why, in what view of the "general welfare," it is that since any amount can be found to promote advancement in the science, and successful practice in the art of war, nothing can be granted for the better instruction of the rising generation of freemen in the science and practice of that great peaceful pursuit which employs, feeds and pays all others?

Under the most despotic monarchies, men of genius who have conferred signal benefits on the industrial pursuits of the people, by scientific discoveries and useful inventions, have been lavishly rewarded, and raised to the highest honors.—Mechanics, chemists, astronomers, great naturalists, and learned and enterprising men in every walk of civil life, have been there endowed with titles and fortune. If, under such Governments, stars and garters, and badges of power and respect, have stimulated to heroic deeds in fields of battle, so have they been held up as certain prizes to intellectual excellence, and great accomplishments in the arts and employments of peaceful industry. If schools have there been maintained for training youth in the art of war, so have they been maintained for teaching the application of the arts and sciences to all the industrial pursuits of life.

As republican freeholders, then, we would respectfully inquire whether it be becoming or politic for this nation, whose Government rests for security on the popular intelligence, to imitate European Governments *only* in the favor and patronage they confer, with self-preserving instinct, on that Executive department of their power upon which *they* lean to protect their existence against the progress of free principles, and the force of public opinion seeking to carry them out?

It would indeed be passing strange, as it seems to your memorialists, that in a Government called free, deriving so chiefly all its resources from the agricultural interest, its powers should be so organized as to preclude the application of any portion of the public treasure to confessedly, and by far, the greatest of all public concerns! We would respectfully forbear from remarking, as it would seem to deserve, on that monstrous perversion and abuse of sovereign authority, in a Government called republican, which should reserve all life tenures, and all pensions, and all enlightenment, for the military, while it renounces the glorious faculty of aiding and rewarding the labors of intellect in the humbler, but so much more useful paths of peaceful, laborious and productive industry!

In behalf, then, not so much of themselves, as of the rising generation of agriculturists, on whom our country and its liberties must mainly depend under all vicissitudes, we call upon you, to whom we have consigned for the time the sovereign authority of the State, to demand from the General Government that something be now, at last, done to *foster Agriculture*, by diffusing that knowledge

which is power, no less in the field of labor than of blood. They believe they have a right to expect for this great national purpose, so identical with the general welfare, appropriations bearing some proportion to the amount which the products of Agriculture bear to the aggregate wealth of the nation, and to the degree of dependence of the Government itself, and all classes under it, on that class for employment, protection, safety and support.

THE DISEASE IN POTATOES.

WHEN PLANTED FROM THE SEED, ARE POTATOES MORE EXEMPT THAN WHEN PLANTED FROM OLDER TUBERS?

TOLEDO, Ohio, November 3, 1846.

Mr. Editor: I am well aware that many theories have been advanced to account for the "*disease*," as it is called, so universally prevalent among potatoes. Some affirm that numerous "animalculæ" are the cause; others "fungi," and others, without any apparent reason whatever, that it is owing to wet weather which we have untimely (?) experienced.

From repeated observations and experiments recently made in the cultivation of this esculent, I am fully persuaded that the "*disease*," or "rot," is nothing more than the deterioration incident to their having *nearly run out*.

I notice in your valuable Journal for September a communication from a Baltimore correspondent (who seems to favor the above opinion), recommending importations of the original plant from its natal place, South America, with which to start a new run of crops. This plan, if fully carried out, I doubt not would result in giving us sound potatoes, like those produced after the plant was first introduced into Europe and the United States; but the improbability of its ever being done, to an extent sufficient to establish an entire new run of crops, detracts, I think, materially from its importance to us at the present time.

The loss of at least one-half of my crop in the year 1843, being a large increase upon previous years, satisfied *me* that they had actually run out, or were fast approximating to it, and suggested the feasibility of reproducing them from the *seed of the apple*. Accordingly, the next year (1844) I planted the *seed of the apple* in about twenty hills near the center of the field, while all around them were planted potatoes of the previous year. After gathering all the other potatoes in the field, I opened the remaining twenty hills, which I found yielded on an average a dozen to a hill, and about the size of a large walnut. These I planted last year in detached parts of the field, and gathered therefrom potatoes of the usual size, entirely free from the "disease" or "rot" which infected those raised from the old potatoes. This year I planted my whole field with these potatoes, and have gathered a usual-sized crop, entirely free from "disease," as before.

With the above facts in view, I would ask, cannot a new run of crops be produced from potatoes raised from the seed of the old or deteriorated plants, equal to any that could be raised from the natal plant itself? If so, let it be urged upon the attention of farmers throughout the United States, and thereby save the food of thousands—that valuable esculent, the potato.

G. B.

IN publishing the above, we feel called upon to say that the weight of testimony greatly preponderates against relying on potatoes raised from tubers which have recently been produced from the *seed*.

The most elaborate and careful investigation, after that of the Commissioners appointed by the British Government, is to be found in the October number of the Journal of the "HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND."

They framed and sent to hundreds of the most distinguished agriculturists the following queries:

"1. At what period in the season, and after what state of the weather, the disease manifested itself? What were the general appearances presented by the stems, leaves and flowers, and by the tubers, when the taint had extended itself to them?

"2. Whether any of the varieties of potatoes commonly cultivated have escaped the disease, or been less affected than the others? Whether potatoes recently obtained from seeds have been less subject to it than those which have been long raised from sets or tubers?—Whether any particular condition of the soil, as to wetness, previous cultivation, or the kinds of manures used, appear to have had any influence in promoting, retarding or preventing the disease?

"3. What have been the modes employed in storing the potatoes, and what are the means which have been found most successful in preserving the healthy tubers, and preventing the extension of the taint from the diseased to the sound ones?"

We have not room in this number for even the substance of the answers to these queries; but it is admirable to see the promptness and explicitness of the replies from no less than 132 farmers. The Society first embody in a very condensed statement the substance of these answers to each question, and then by numbers refer to and publish the answers themselves, that the reader may see the precise ground of their summary statement. We can only give their statement of the answers received to the branch of the second query, "Whether potatoes recently obtained from seeds have been less subject to it than those which have been long raised from sets or tubers?" and on this point the Society say:

"The answers to this inquiry are numerous. Nearly all the reporters state that potatoes raised recently from the seeds were *equally subject* to the disease as those which had been long propagated from the tubers; and, in the opinion of many of the reporters, the potatoes recently raised from seeds were *more liable to be affected than the others.*"

They then refer to twenty-three reports, from as many different persons, and say:

"All these reports concur as to the fact that potatoes from seeds were as bad as, or worse than, others. The contrary opinion is reported by only three gentlemen, viz.

"Mr. John Hogarth, Berwickshire, who states that some raised from seed were free from disease, and kept well.

"Mr. Alexander J. Main, Edinburghshire, who says that sets of potatoes raised for four years from seed were not so much affected as those from older tubers.

"Mr. Francis McMinn, Lanarkshire, who mentions that the only potatoes raised from seed in his neighborhood have kept."

Nor is it probable that potatoes lately raised from seed will be more exempt than potatoes of the oldest stock, if the *cause* of the disease is such as stated in the next chapter.

Those who have observed the progress of investigation on this intoresting question with proper and enlarged views, and a fair disposition to do justice to those to whose acquirements and labors we might be indebted for the best elucidation of the subject, cannot have failed to notice the very quiet and unostentatious, but at the same time very efficient part performed by Mr. TESCHEMACHER, of Boston one of the most disinterested and accomplished vegetable chemists of the age.

In giving place to the following from a late number of the London Gardeners Chronicle, it would be a gross omission not to refer to the fact that as far back as October, 1844, Mr. T. took the opportunity of examining chemically and with great care the first diseased potatoes which came within his notice, and pronounced the opinion since promulgated by Morren, and now again insisted upon in this most recent Report, made officially to the Danish Government, through the Polytechnic Institution of Copenhagen, being written by Professor LIEBMANN, and, in Denmark, thought to give a satisfactory solution of the cause of the sickness. It is, however, proper to state that Professor LINDLEY, Editor of the Lon-

don Gardeners' Chronicle, in which we find the following article, and who was one of the Commissioners appointed to make examinations into this subject, does not seem by any means to be satisfied either as to the real cause or as to any effectual remedy. He recommends *fall planting*, for reasons which we shall probably give in our next. There is, he says, no danger of potatoes being killed by frost in winter, in the ground.

"Although the potato complaint already in the course of several years has been known in various places in Europe, it did not become the subject of general attention before last year, when almost all over Europe it caused great devastation. Also this year the sickness has broken out suddenly, and with great violence at the same time, all over the country, and has, in short time, destroyed the greatest part of the parts of the potato plant vegetating above ground; but it is not yet decided whether the complaint will have as great influence on the tubers as was the case last year. According to all accounts we have been able to collect, as well as from our own observations, the complaint this year has chiefly attacked the early ripe potatoes; but those later ripe have been much more free. Although where the potato complaint last year made its devastations, it has become subject of investigation carefully conducted by individuals as well as by Committees appointed to this effect, employing large sums of public money for the promotion of these inquisitions; still, notwithstanding all that is done in this direction, and that our literature has been increased to an enormous extent, still the result of all these endeavors is comparatively nothing. None of the remedies so variously proposed have been effective. Last year the attention was only drawn to the illness when far advanced; its first beginning, as well as its cause, came not at all under experienced and scientific men's observation. This year, when attention has been early directed to the vegetative process of the potatoes, it has been possible to observe all the phenomena of the illness from its first beginning, and there *can no longer be doubt of the cause of the illness.* It is a parasitical *fungus belonging to the mildew or thread fungi* which attacks the parts of the potato above ground, and which shortly, in the way peculiar to fungi, destroys the cellular texture of leaves, flower and stem; this fungus presents a fine cobweb texture of uncolored branched fibres, and increases with great speed by elastic germinating grains, which only appear by a considerably magnifying power. These germinating grains are so small and so light that they are floating about in the air, and descend with the dew-drops on the sound plants, develop themselves in few hours to threads, and destroy the leaves. It is certain that the illness is produced by this parasitical fungus.

"The sickness in the tubers appears only some time after the part of the plant above ground is destroyed, and shows itself by destroying the cellular texture which, by the destruction of the leaves, is deprived of the regular nourishment which is derived from these parts.

"The existence of the potato thread fungus is like all fungi generally, only brief, and it is only plainly discernible on leaves not yet blackened or faded. We feel bold to assert that the period of vegetation of this parasitical fungus this year, has been confined to the first fourteen days of August, and that it will only be the consequences of the ravages of the fungus during these fourteen days which will be felt this autumn.

"Since it is now made apparent that the illness is caused by this parasitical fungus, it is evident that all previous suppositions about the degeneration of the potato plant as cause of the illness are groundless, and that orders for seed potatoes from places hitherto free would be useless. That may easily be conjectured when the cause of the illness is known; and what confirms this opinion is, that Liebmann, on a journey through the island of Tionia, in the beginning of this month, learned that several farmers who, at great cost, had got seed potatoes from places in the United States free from illness, had, notwithstanding, got several such fields attacked as much as others with the common seed.

"The Committee feels therefore pleased that already, before these experiments were made, it advised not to import from Spain or the United States, feeling convinced that there was small probability of the complaint being from degeneration of the plant. *It is therefore evident* that all trials to destroy the complaint will be useless, inasmuch as it originates in a parasitic fungus, the invisible germinating grain of which is carried about in the air, and which will develop itself wherever it finds a suitable soil, viz., potato plants, be they natives or from abroad, or whether the seed tubers have been washed or not in water or solutions of salt.

"The potato complaint is an evil which we hope time will heal as it has brought it.

E. A. SCHARLING,
F. LIEBMANN,
A. WEILBACH.

"*Copenhagen, August* 31."

Would it not be well, by the by, however indifferent he may himself be about it, as a matter of justice and of right to him, and to the country, that Mr. Teschemacher's communication on this subject, made, *by request*, to the "NEW-YORK STATE AGRICULTURAL SOCIETY," as far back as Dec. 1845, and in which he too assigned fungus as the cause for this disease, should be allowed to see the light? Was it mislaid, that it did not form a part of their annual publication? for it is not easy to imagine any paper which, in that stage of this question, could have possessed greater interest for agricultural science and literature—coming from such a mind and such a pen, and proclaiming then the identical opinion to which some of

the ablest vegetable chemists in Europe have since arrived. For one, if that paper be still in existence, we should be glad to see and compare it with more recent researches, and even to preserve it as a matter merely of justice to the individual, and of agricultural history; and, as far as it goes, as a proof of our claim to "priority of discovery." With men of the true stamp, discoveries of the *mind* are far more preciously esteemed than discoveries of *mines;* and the society or community that does not well guard its fellow members in the possession of the honors thus hardly earned by intellectual courage and labor, but illy consults its own welfare.

It seems, too, not the less remarkable that Mr. TESCHEMACHER's communication to the same Society, accompanied by eight or nine samples of various qualities of guano, with the analysis of each, as we see stated in the Patent-Office Agricultural Report of 1846, page 514, Doc. 140, has been in like manner withheld from the public. Was it that the Prize Essay afterward published happened to embrace enough of similar views and analyses to render the publication of his communication unnecessary?

It has been gratifying, nevertheless, to see that his Essay on Guano, the most elaborate, scientific and practical we have had, and which was published elsewhere in this country, we believe in that lamented organ of New-England Agriculture, the New-England Farmer, has attracted notice and been published widely and approvingly in England.

These annual volumes put out by the New-York State Agricultural Society are doubtless prepared with due circumspection and impartiality; still it will not be offensive to any fair mind to have it suggested that our men of science get so inadequately paid, when paid at all, for the hardest sort of labor, that too much pains cannot be taken to see that when they do work for nothing and find themselves, the public be allowed to enjoy the benefit of their gratuitous services, and the opportunity of paying them in costless thanks at least. For every periodical there is trash enough to be had, if the publishers go for quantity. We would not dare ask it of men of real science, with whom minutes are hours, to write for The Farmers' Library, but we are much mistaken if when such men as JACKSON and TESCHEMACHER do put pen to paper on questions of agricultural science, there is much said that would deserve to be suppressed.

AS TO THE REMEDY.—In the same unpublished and unnoticed communication from Teschemacher to the New-York State Agricultural Society, he suggested *salt* as the remedy or preventive of the potato rot, and we have been told that this remedy has been signally efficacious in many cases where it has been tried in the neighborhood of Boston, many having there tried it whose potatoes have escaped, while all around suffered. Below we give instances reported in late numbers of the London Gardeners' Chronicle to the same effect. But here again it is our duty to state (being absolutely unprejudiced and impartial on this subject, as we endeavor to be on all) that in the same number the Editor of that journal, standing high as a botanist, at home and abroad, and having bestowed on this matter perhaps more thought and observation than almost any man living, seems to be utterly at a loss and confounded. After referring to the several remedies recommended, and lime and salt among the rest, he says: "For ourselves, we feel it to be as presumptuous in ourselves as in others to hazard any recommendations, where all is confessedly most uncertain; nevertheless we cannot shun the responsibility which attaches to our position." He then goes on to recommend "Autumn planting," as the best under the circumstances,

"yet," says he, "we by no means pretend that it is a security against the potato disease."

The following are the items we find in the same number of his paper, going so far to corroborate the opinion expressed by Mr. Teschemacher three years ago, and still entertained by him, fortified by more recent instances in the vicinity of Boston:

SALT A MANURE FOR POTATOES.—I have heard of several instances of sound potatoes being grown where the land was previously dressed with salt, and one very striking instance has come within my own knowledge. I am satisfied that all light soils that have borne diseased potatoes this year, or that is intended for planting potatoes next spring, should be dressed with from 10 to 15 cwts. to the acre, applied half now and half in the spring. This application is simple and cheap, and, at all events, can do no harm.

SALT A PREVENTIVE OF THE POTATO DISEASE.—A very intelligent laboring man, who cultivates about 4 acres of land, informs me that he this year tried the effect of soot and of salt on small portions of his potato crop. The potatoes were planted in drills, and manure from the pigsties was laid over the sets. In two of the rows soot was sprinkled, in small quantities, over the sets before the manure was laid on. In three other rows, salt was similarly applied. When the potatoes were got up, a short time since, only two or three were found diseased where the soot had been applied, and none at all where the salt had been used. Those to which nothing had been applied except the manure, contained a large proportion of diseased potatoes. The soil on which this experiment was tried is light and gravelly.

We boast that ours is the best and the wisest Government in the universe, resting on public virtue and guided by superior intelligence; and so it may be; but taking a partial view, one might be led for a moment to conclude that wisdom and virtue are confined to no particular forms, but that "that which is best administered is best."

Here is a question—this dreadful malady which threatens extinction to the most valuable of all esculents; raging and increasing now for some years, and which, according to the gloomy theory of Malthus, we might suppose had been sent by Providence as a check upon the natural prolificness of the human race; yet where is the commission appointed, or the reward offered for its investigation, by any Government, General or State, or any Society or Institute in the whole country? In England, in France, in Germany, commissions consisting of the ablest men to be found in these countries respectivelv, have been appointed, and well paid, to bring all their powers of investigation, and all the lights of science to bear on a subject admitted on all hands to be of the greatest national consequence; and even though it were true that neither cause nor remedy have been discovered, to the satisfaction of all, yet the cause of agricultural literature itself has been promoted, and a great service rendered, if only in showing how indispensable are the aids and the instruments of science, to all researches into the principles of vegetable physiology. Ah! truly, we had forgotten! *We have made a grand display of public spirit!* Congress paid about $20,000, we suppose, for the 250 pages dedicated to this particular object, in that great and brilliant EXPOSITION OF NATIONAL INDUSTRY, THE PATENT OFFICE ANNUAL. More of that anon.

A CURIOUS FACT IN AGRICULTURE.—We find in the New-York Post an account of the production of potatoes in the following manner: A gentleman, in the month of May, conceived that it was necessary to cut one or two more branches from his grape-vine, and he accordingly lopped off the unnecessary branches, which caused them to bleed; and to remedy this, he split a potato into two pieces, one of which he stuck on the end of the bleeding branch. He then tied a rag fast to the branch, so as to cover the potato and keep it from falling off, and then left it. The rag was not disturbed again until a day or two since, when it was removed and found to contain a crop of four small potatoes, which had grown from the piece stuck on the end of the branch.

THOROUGH DRAINING.

ITS PRACTICAL EFFECTS AND RESULTS.

THIS, now, is one of the great openings for improvement of farms in the Old States. By its means, an immense quantity of land, worse than waste, may be brought into play, the value of which cannot well be overrated; for, in the first place, the land to be by this means reclaimed is generally the best on the estate naturally; and, secondly, it may be then laid down to grass, and produce for years heavy crops, without *expense of cultivation;* and we need not add that the most lamentable deficiency in the resources of the American farmer is *want of grass.*

No agriculturist of the right sort of sense and ambition can "sleep easy in his bed," if he does not feel sure that, while he is drawing from his land the fair results of well-directed labor, his estate is at the same time in a course of *progressive improvement!* That he should aim at, as one of the principal items to be carried to the credit side, in his account of profit and loss; and, without looking closely to that, he is just as sure to be finally overtaken with bankruptcy as the merchant, who would not be trusted by any one on 'Change who should know him to be guilty of neglect *in keeping accounts.*

Well, how is he to make sure of this progressive improvement in the productiveness and the value of his estate, unless he make sure of an *adequate supply of manure?* Ay, my dear reader, you may blink the matter, if you will, for the moment—you may try to postpone and get round it—but to that you must come at last. There is no other way—no short cut to escape from ruin to your land and yourself—unless, by some means, you *feed it with manure,* at least equal to what your crops and your animals carry off it. For the farmer is beginning now to understand that, in the very blood and bones of every beef he consumes or sells, there is a certain amount of the productive capacity of his land subtracted from it. You might just as well expect a mill-hopper to go on yielding meal, without pouring in the grist, as your farm to continue, without food, to give full crops; and the most sure, obvious and reliable resource for *manure* is *grass.* The want of it is as fatal, in most cases, as the loss of the horse-shoe nail, as related by Dr. Franklin—where, for want of the nail, the shoe was lost; and for want of the shoe the horse fell lame, the messenger failed in his journey, and great calamity fell on the State.

In England, where they have a moist climate and plenty of capital, they keep up and greatly increase the fertility of their lands by a single *root.* Yes, the population, the wealth, the power of England is in her *turnips.* We might have them, too, in our country, as we are inclined to believe, to a much greater extent than we do, if farmers would well manure and *thoroughly* prepare their land, and *sow much earlier.* There 's Mr. Sotham, on Mr. Corning's estate, near Albany, never fails in a heavy crop of Swedes. But at any rate, to come back to our subject, much may be done toward having the means of keeping stock to increase the manure by *draining.* Even the smallest spots—say many half acres, here and there—might and ought to be thus reclaimed. But, then, it must be thoroughly done. There is no work the result of which so much depends on

its being completely *well done*. In this business it is *hit* or *miss*. It is not more or less—it 's *everything* or *nothing!* On this subject, as to the *means of doing it*, and the *profits* of it when well done, no patron of this journal shall plead ignorance before we are done with it; for we know of no subject more worthy of attention. But we have not room to dwell longer at this time.

Might not farmers associate, and appoint agents in this city to engage Irish ditchers—for they are like muskrats in a swamp—on their arrival, to go and live by the year, at certain wages. But we shall return to and elaborate this idea on some early occasion. We think it might be practicable to get laborers and mechanics in this way, to the advantage of all parties.

DRAINING.

BY THE VERY REV. DR. BUCKLAND.

He would advise the farmers of Devon and Dorset to go by railway to Lincolnshire and Norfolk, where the most beneficial changes had been realized over entire counties. There were men now living who could remember when 40,000 acres of land belonging to the late Lord Leicester, in Norfolk, which are now worth £40,000 a year, were nothing but rabbit warrens and barren heaths. Lord Yarborough had 30,000 acres of land in Lincolnshire, which formerly let at 4s. 6d. [$1 08] per acre, and at this low rate ruined almost every farmer who rented it; this same land is now rented at an average of 25s. [$6 25] per acre, by farmers who are all making such large fortunes that many of them keep their carriages. In Norfolk it was the custom of Lord Leicester, when applied to for a farm, to ask the applicant how much capital he could command. "I have farms," he would say, "of all sizes for every amount of capital—from 2,000 down to 200 acres." This was an admirable plan. He was satisfied that one great cause of bad farming was the ambition of tenants in undertaking a larger farm than they could stock and adequately manure. It was not surprising that the farmer could not succeed who, having a capital of £1,000, took a farm which required £2,000.* The learned Professor then referred to the important operation of draining, as the foundation of all good farming. It was useless to put tons of manure on land that was not dry; in that case it would only float upon the surface, for wet clay could not allow it to go down—it was almost entirely thrown away. Draining rendered the land penetrable by water, and enabled the rain to descend freely through it, carrying to the roots those fertilizing elements of carbonic acid and ammonia with which rain-water was always charged. Carbonic acid was continually supplied to the air from chimneys, and from putrefying animal and vegetable substances, also from the breath expired from the lungs of animals, and a hundred other sources; it floated in the atmosphere in a gaseous form, and was brought down again by rain. Falling upon drained land, this rain penetrated its surface, and, as he had just said, carried with it to the roots of plants two of their greatest elements of fertility.

It was the landed proprietors' and the farmers' incumbent duty to increase the fertility of the soil, because the soil alone afforded the food which it was our business to provide for ourselves and families. Fifty years ago, Parliament had given a premium for draining to Mr. Elkington; and his system, where it was applicable, had answered the required purpose; but it was not applicable so generally as newer systems, for the publication of which the country was mainly indebted to Mr. Smith, of Deanston. He remembered, when returning from Scotland after visiting Mr. Smith's farm at Deanston four years ago, being taken by Sir Robert Peel into a field of his near Tamworth, which was almost swamped with water, and nearly unproductive. He advised Sir Robert to drain it after the manner of Mr. Smith, which he forthwith did, and the result was in the very first year a splendid crop of turnips, and the second year a crop of barley so luxuriant that the stalks could not support the ears, and fell prostrate to the ground.—The expenses were repaid in two years, and this worthless field was now a most profitable piece of land. The Rev. Doctor then mentioned another instance of the effect of drainage near Wolverhampton, in Staffordshire, by Lord Hatherton. His Lordship had reclaimed a wild tract of 1,500 acres adjoining Cannock Chase, on hills higher than those in East Devon, and had increased its value from 5s. to 25s. per acre. After impressing thus forcibly the importance of draining, as the first step in agricultural improvement, the learned Professor proceeded to remark on the application of manures.

* The reader must bear in mind that this means the capital requisite for a *tenant*—not to purchase the land; and this explains, to a great extent, the greater productiveness of English farms. They have a great amount of capital—we nothing, comparatively, but the *naked land!* But all difficulties vanish to men of resolution and *thought*.

APPLICATION OF MANURES.

The reader but too probably nauseates at the very word *manure!* yet what so important?—and besides, like it or not, the doctor must give the medicine he thinks best suited to the case; and so we shall continue to give in doses, broken, though they may not always be small, what may seem best suited to the condition of *our* patients. By the by, when did any one know brokers and merchants to tire of hearing and talking about the rise and fall of produce and of stocks?

In the preceding chapter, we have given some striking facts on the subject of draining, from "the Very Reverend Doctor Buckland," and the following is a continuation of his lecture.

When shall we have lectures on botany, and natural history, and vegetable chemistry, from our country clergy?

As the elements of manure could only act on plants when in a state of solution, it ought never to be applied as a top-dressing, except in wet weather. It was common to see manure applied to turnips during the dog-days, when the sky was bright and clear, and not a particle of rain falling. In this case, so far from the manure doing any immediate good, its ammonia was speedily evaporated, being extremely volatile, and passed into the atmosphere, instead of the roots of plants. In a dry season, if manures were used at all, they ought to be buried in the ground, and not applied as a top-dressing; in rainy seasons the virtue of manures descended with the rain-water, to the immediate benefit of the growing plants. There were two advantages to be derived from draining, which were—time and money. He who was always behind-hand could not be a good farmer. The early farmer takes his commodities early to market from well-drained land, which is fit to be worked at almost any time, and has threshed his barley, and converted it into cash, while the late farmer's crops are not yet ripe for the harvest. No farm on a wet clay soil can produce half the corn it is capable of growing, if thoroughly drained. Referring to different kinds of manure applied to land after it was prepared by drainage for receiving it, the Professor observed that he need hardly say that the best of all manures was farm-yard dung, though he was sorry to remark the farmers did neither produce or preserve so much of it as they might easily do. Farm-yard dung was the best of all manures, because it gave back directly to the soil the elements of the plants that had been consumed by cattle as their food. But, besides the manure produced on his own land, the good farmer is obliged to borrow and fetch from a distance the elementary substances of imported artificial manures. The farmers of the east side of England go to London for bone-dust, and to Holland for rape-cake and oil-cake. This oil-cake, together with straw, is used for the winter food of oxen in their farm-yards, which are thus annually charged with an abundance of rich manure. There was another kind of manure, which he wished particularly to impress upon the farmer's attention—he alluded to guano. It was, as they knew, the droppings of sea-fowl, accumulated for ages upon islands off the coasts of Africa and America, and on many islands in the Pacific Ocean. Since its first importation, four years only ago,* guano had been used with the greatest success in various parts of the country. It was notorious that experiments made with it during the present year had almost universally failed; and their failure proved that it ought never to be applied as a top-dressing, except in rainy weather, and when the plant is in a state of active growth. There were many advantages attending the use of guano, not the least of which was its portability, and its power of retaining its properties for many years, if kept dry and excluded from the air. It was much cheaper now than on its introduction into this country, and next year the supply would be such as to reduce its price to half of that charged last year. He knew that no less than 600 ships had left Liverpool alone last year to get guano, and they would bring back at least 60,000 tons. Some of the guano sold in this country was adulterated by art, and some by Nature; but a little precaution on the part of the buyer would prevent his being imposed upon. He had only to put a tea-spoonful into a tumbler full of warm water, and to wash and rinse it, whirling it round briskly, when the sand (if any were mixed with it) might be detected at the bottom. The learned Professor then referred to the night-soil and clon-

* The Editor of The Farmers' Library, then Editor of the American Farmer, distributed two barrels of it in Maryland twenty years ago; and as far back as that told the whole story of Alpacca sheep—their history, uses, value, &c.—with engravings.

cine, as the most valuable of all animal manures. It was extensively used on the Continent, though not in Britain. In Belgium it was valued at £1 17s. 6d. [$9] per individual, while Englishmen are traveling to distant regions of the earth—to Africa and America—traversing sea and land, to bring home elements which they may readily obtain at home. Night-soil was most valuable, because it contained the elements of all kinds of food consumed by man, and in applying these to the soil we returned the identical constituents which former crops and animals had taken from it. It contained phosphate of lime, which was indispensable to the growth of animals' bones, and to the nutriment of plants, and which was not supplied from the atmosphere like carbonic acid and ammonia. He recommended the preserving of all fluid and solid excretions, by mixing with them saw-dust, or ashes, or burnt clay, in a dry place, which would deprive them of their unpleasant smell. The Professor then urged that, in all good farming, there must be a debtor and creditor account between the farmer and his land.—Give and Take must be the rule; if no manure be applied, it was unjust and idle to expect abundant produce. If the farmer starves the land, the land will assuredly starve him. The man who gives nothing deserves nothing. He is a plunderer—a plunderer and a robber of his mother earth—and his speedy ruin is the merited punishment of his ravage.

AGRICULTURAL PRODUCTS OF TEXAS.

BASTROP COUNTY, (now) State of Texas, Sept. 7, 1846.

To the Editor of The Farmers' Library:

MY DEAR SIR: I have just read the August number of THE FARMERS' LIBRARY AND MONTHLY JOURNAL OF AGRICULTURE, and am extremely gratified to see you have recommended the culture of flax and hops. They are both indigenous in Texas, and consequently could be cultivated with profit. If you, like a good "schoolmaster, will do what you promised should be done for every tree of the orchard and the forest, every grain of the field, every vegetable of the garden, and every vine shall tell its own history"—and will please look,

"With equal eye, as friend of all,"

on Texas as on the Old Thirteen, and give us some instruction about growing the sugar-cane, and manufacture of sugar, also Spanish tobacco, hemp, and indigo, to the growth of all which our climate and soil are congenial, I think our musqueat, prairie land will come in competition with the cane-brake region of Alabama for growing Indian corn and cotton. We can, on the virgin soil, with "brute labor," grow seventy-five bushels of the former, and four thousand pounds (seed) of the latter per acre. I send you a few musqueat grass seed (not knowing the botanic name). Sow in a rich, stiff soil; it will grow all winter, and go to seed in August. The beef, butter and milk which it produces are superior to anything of the kind I ever tasted. You would be astonished to see (as you could, if here) an ox fifteen hands high, with horns three feet long, and five feet from point to point, fed solely on grass—fat in winter and summer.

Cordially, with respect, your obedient servant, AN OLD TEXAN.

P. S. May God speed the pen, enlighten the head, and refine the heart of him who converts the wilderness into a fruitful field! There ought to be a hundred subscribers to THE FARMERS' LIBRARY, not only in this, but every county in the State. O. T.

LONGEVITY OF PEACH TREES.—There is no part of the United States where the peach tree is more healthy, or attains a greater age, than in Western New-York. It is only improper soil or culture, and bad treatment, that has caused early decay where it has occurred. The best orchards in this section, now in full vigor, are bordering on 20 years old. We have just been shown a collection of fruits, by Col. Colby of Ogden; and among others, a fair-looking, natural peach, from a tree *forty years old*, yet healthy and productive.

[Genesee Farmer.

CULTIVATION OF THE ORANGE.

THROUGH the kindness of A. H. PALMER, Esq., Director of the American and Foreign Agency at New-York, we have received the Journal of the Agricultural and Horticultural Society of Perth, Western Australia, from which we extract the following observations on the Cultivation of the Citrus Tribe, by W. TANNER, Esq., a member of said Society. From the adaptation of the soil and climate of a large portion of the southern territory of the United States, to the profitable cultivation of the Orange and other species of citrus, we trust that his remarks, together with the subjoined notes by Mr. Browne, will be duly appreciated by a large portion of our readers, particularly those who reside in Florida, where this species of culture has long been practiced with success.

THE genus *citrus* comprising, according to some, eight species, and some of these species containing several varieties, is supposed to have been brought originally from India, and perhaps other parts of Asia, where it is now found growing wild. True, it is also to be seen in a wild state in parts of South America, yet these plants are probably remains of gardens long since abandoned. It is now cultivated in the open air in the East and West Indies, Japan and Australia; and in Europe, in Spain, Portugal, France, Italy, and the Azores. The oranges of St. Michael are now the best that are to be met with in the European market. The plants of this genus, in addition to the usefulness of their products, are worth cultivating were it only for their beauty. In Europe orange trees continue flowering nearly all summer, and the fruit takes two years to come to maturity, so that for a considerable period of each year a healthy tree exhibits every stage of the production, from the flower bud to the ripe fruit in perfection at the same time. In Spain there are old orange trees forming large timber. In the convent of Santa Sabina at Rome, there is an orange tree 30 feet high, and said to be 600 years old. At Nice in 1789 was an orange tree 50 feet high, requiring two men to embrace it. The orange is a taller and more beautiful tree than either the citron or lemon. In Algarve and Andalusia, the orange trees are of great size.

"The present amount of oranges and lemons exported from St. Michael, is upward of 120,000 boxes, and 70 or 80 vessels are sometimes seen lying in the roads waiting to carry them to Europe. The imports into England from Portugal in lemons and oranges are 200,000 boxes. The principal exports from Seville are bitter and sweet oranges and lemons. The sweet oranges are more cultivated than the bitter. About 50 vessels of from 80 to 120 tons are annually loaded with oranges and lemons at Seville. The exports from Malaga are from 11,000 to 14,000 chests of 1,000 lemons each, yearly; oranges 300 to 500 chests. The imports into England, from all parts, have sometimes averaged 270,606 boxes a year.*

* For many years past, no small degree of attention has been paid to the culture of the common edible orange, at St. Augustine, and on the river St. John's. The number of trees owned by different individuals, prior to 1845, varied from ten to fifteen hundred. Perhaps no person in Florida had more than the latter number in full bearing condition, at the time of the great frost, which occurred on the 9th of February of that year. There were many trees then to be found in St. Augustine, which exceeded 40 feet in hight, with trunks from 20 to 27 inches in diameter, and which, probably, were more than a century old. But there are many persons in that vicinity, at the present time, who are extensively engaged in the business. The late Mr. Kingsley left upward of 6,000 bearing trees, in 1843, all of which are on the St. John's. In addition to these, there are also on the same river, more than one hundred orange groves, which, it is estimated, contain 20,000 trees. At St. Augustine, it is said, there are, at least, 30,000 standard trees, 4,000 of which are owned by Mr. J. Douglass, about the same number by Mr. V. Sanchez; and by Mr. J. Drisdale, and the lady of the late Dr. Anderson, fifteen hundred each. Notwithstanding the injuries which the trees have suffered by the depredations of insects, for a few years, as well as by the discouragement caused by frost, it may be observed that there are more standard trees planted in Florida, at the present time, than there ever were at any former period. Previous to 1835, St. Augustine produced annually from 2,000,000 to 2,500,000 oranges, which were equal in bulk to about 15,000 barrels. They were shipped to Charleston, Baltimore, New-York, Boston, &c., and usually brought from $1 to $3 per hundred, or about $3 per barrel, producing in the aggregate a little short of $50,000 per annum. During the orange season, the port of St. Augustine formerly presented quite a commercial aspect, there being frequently from fifteen to twenty vessels in at a time, loading with fruit. A person who was the owner of 100 standard trees, could safely rely on a yearly income arising therefrom of $2,000—sometimes $3,000, and even $4,000! In 1829, Mr. A. Alvarez gathered from a single tree, 6,500 oranges; and it is said that there was a tree on the St. John's, which bore 9,000 fruits in one year! But ordinarily each tree produces about 2,000 fruits. The orange has also been an object of culture for a long time in Carolina and Georgia; and in 1762, it will be seen by the London "Annual Register" for that year, that there were four barrels of this fruit shipped from Charleston to England.

[*Browne—Trees of America.*

It would be tedious to enumerate all the varieties of this tribe; besides, the learned differ as to which are species and which varieties. Who, then, shall decide? I give, however, from the large work of Risso of Nice, an arrangement which may suffice: Sweet orange 43; bitter and sour oranges 32; bergamots 5; limes 8; shaddocks 6; lemons 46; citrons 17 sorts. In India the shaddock, when it arrives at its largest size, is called Pamplemouse. There are in N. S. Wales some very good varieties of sweet orange raised from seed; the principal objection to them is their thick rind. A gentleman in Sydney has imported a number of varieties of choice oranges from China. Chief Justice Forbes imported a very superior orange called the Selitta orange; its fruit is much prized.

The fruit of the shaddock is from two and a half to eight inches in diameter. The juice is sweet in some varieties and acid in others; is rather insipid, but excellent for quenching thirst. The rind is very thick, in consequence of which the fruit can be kept much longer during sea voyages than that of any other species of citrus. In the West Indies the shaddock has been neglected; from having been usually raised from seed, harsh and sour sort of fruit of little value is obtained there. Thunberg says that it is commonly of the size of a child's head, in Japan. Dr. Sickler describes it as weighing fourteen pounds, with a diameter of from seven to eight inches. Bishop Heber thus describes the shaddock of India. The shaddock resembles a melon externally, but it is in fact a vast orange with a rind of two inches thick, the pulp much less juicy than a common orange, and with rather a bitter flavor, certainly a fruit which would be little valued in England, but which in this burning weather I thought rather pleasant and refreshing. In N. S. Wales the shaddock has produced fruit, but is very inferior in quality.

It appears that at Seville, orange trees in good years will yield from 1,000 to 1,500 oranges each. In St. Michael each tree, on arriving at full growth, will annually, upon an average, produce from 12,000 to 16,000 oranges! A gentleman told me he had once gathered 16,000.

In addition to the fruit as used in its fresh state, that of the different varieties, but especially of the citron, is used very extensively as a conserve. The expressed juice of the lime is exported in considerable quantities from the West Indies into England where it is used principally in the process of calico printing. The rind of the bergamot yields, both by pressure and distillation, the scent called bergamot. It is said to have its name from the town of Bergamo. Even the flowers are made to produce a revenue, as some gardens in France yield from £100 to £200 a year from this item alone.

The following observations apply to the cultivation, &c. of the orange tree; without doubt they are most of them equally applicable to the other species. Where either of them requires a different treatment I shall of course, if I am aware of it, describe it.

Moisture.—If there be any instances in Western Australia in which the orange has thriven in what is commonly called dry soil, it has not come to my knowledge; should it be cultivable in such, I shall be agreeably disappointed. The only chance of success in such situations, I should say, is deep trenching in a soil either naturally or artificially rich. I do not mean that ground naturally dry may not be made available for this tree by irrigation, but I think that unless water can be had for it either naturally in the soil, or otherwise, success will be at least doubtful. Shepherd, who appears to have been a practical gardener, says that in N. S. Wales in a dry season hundreds of bearing orange trees die for want of water. Were they well watered and manured they would be seldom attacked by insects. I should like to see the orange tried in the black friable soil of our richest flats on the Swan—a good imitation of which would be old hot-bed dung, two or three years old, or compost of decayed vegetable matter. I would plant the trees in a depth of at least three feet of this compost.

As some persons who might wish to form orange groves no doubt possess situations suitable to the orange as to moisture, but with a soil totally unfit from its being too sandy, or otherwise too poor—I would say in such situations dig holes 4 feet deep and either 2 or 3 feet across, according to the abundance or otherwise of the compost with which they are to be filled. This space will suffice to nourish the trees and enable them to flourish and produce fruit for some years at least, as witness the orange trees in tubs or boxes which many of us have seen in England, Flanders, France and Italy. At a future time these trees can be supplied with additional pabulum without greatly disturbing their roots, by adding at their four sides, during four successive years, or at longer intervals, and to the depth of the original holes, a similar compost. The compost recommended by the French, and described below, or something like it, might be used for trees thus managed, on the same principle as that is, by them, for tubs, their intention is to compensate for quantity by richness. I would suggest that the holes on this plan be not shallower than four feet, as it would not be easy to increase the depth hereafter. The horizontal diameter across may be as little as two feet but not less, as the roots would completely extend over this space in one or two years. When they shall have been increased to four feet diameter they would equal in bulk the largest boxes I have ever heard of, and though not of sufficient bulk to produce trees of the very largest size, yet would carry a considerable quantity of fruit, and could be at any time hereafter increased indefinitely, limited only by the scarcity of rich soil or compost.

Though it is the opinion of gardeners that small sized boxes are best for this tree, I cannot conceive that a small tree—which it must be, comparatively, with its roots so confined—can produce 26,000 oranges. In very stiff soil, if holes be dug in this way, and any great quantity of water led over it, indeed with the rain of a wet winter upon it, it will be necessary to form drains from the *bottom* of each hole, which drains may be either hollow in the manner of underdraining, by means of stones or logs, or it may be sufficient to fill in the hollows of these drains with very loose, coarse sand, gravel, or other very permeable substance. In the neighborhood of Seville, the orange trees are irrigated every ten days, and the soil is disposed in small trenches to allow the water to spread. One plantation was there irrigated by means of a steam-engine, not, however, erected for the purpose. This may serve as a hint for those so favorably situated, to make use of any power at their command, whether wind, water, or steam, to raise water for this or a similar purpose. I dislike surface irrigation for two reasons—firstly, because where water is scarce there is necessarily a much greater evaporation, and consequently waste; secondly, because the soil, when moistened at and near the surface, will offer a greater inducement than the drier soil beneath to the roots of the tree to push into it, where they will, in this dry climate, be in greater danger of being injured by the sun, especially if, by any accident, the irrigation were suspended for any length of time. In which case not only may a crop of fruit be lost, but even the life of the tree, and thus the labor and hope of years at once blasted. I would say, if you irrigate—if you lead water in trenches through a soil naturally dry, let your trenches be at least one foot and from that to two feet deep. The writer has thus, by trenches about a foot deep, led water to thirty or forty orange trees planted on dry soil at sixteen and a half feet apart every way; the water having been obtained by digging horizontally into a sand-bank dry on the surface, and upward of fifty feet from the nearest row of trees. A trench runs along one side of each row at an uniform distance of three or four feet from it. This may turn out to be too near when the trees become larger and extend their roots. When this time arrives, these trenches may be advantageously filled up with rich soil or compost, and new ones dug in lieu of them one or two feet farther off.

Soil.—The soil for the orange *must be rich*. Some writers—among others Loudon—insist on the necessity of clay being a component part of the soil, but though it thrives well in a clay, provided it be richly manured, I am of opinion, from all that I have read and seen of its cultivation, that it will do equally well in a rich soil into the composition of which clay does not enter. In the neighborhood of Genoa and Florence the soil is clayey, which is richly manured. Shepherd says, "The soil best adapted for the orange is a fine, free, rich, black or yellow loam." In the south of Italy, and at the Cape of Good Hope, I have seen orange trees growing well in a rich, dark soil, and in the former of great size. At Naples, and in the Azores, in both of which places the soil is entirely of volcanic origin, the mountain slopes are planted with oranges and lemons. When we recollect that one of these islands, St. Michael, is the source whence chiefly England is supplied with this fruit, we may venture to pronounce that clay is not indispensable. The French gardeners recommend as a soil for the orange a compost made as follows: To a fresh loam, which contains one-third clay, one-third sand, and one-third vegetable matter, and which has lain a long time in a heap, add an equal bulk of half rotten cow dung. The following year turn it over twice. The succeeding year mix it with nearly half its bulk of decomposed horse dung. Turn it over twice or three times, and the winter before using add one-twelfth part of sheep's dung, one-twentieth part of pigeon's dung, and one-twentieth of dried ordure.

Henderson, a most successful cultivator of the citrus tribe, takes one part of light brown mould from a piece of ground that has not been cropped nor manured for many years, one part peat earth, two parts river sand, or pit sand if it be free from mineral substances, one part rotted hot-bed dung, and one part rotted leaves of trees, and mixes all well together, so as to form a compost of uniform quality.

Manures.—Well prepared rotten leaves, two to three years old, one-half; rotten cow dung, two, three, and four years old, one-fourth; mellow loam one-fourth; with a small quantity of sand or grit. Garbage from the butcher's yard is recommended to be added to compost for these trees, but to be mixed twelve months before using. Shepherd says rotten dung should be applied to the soil in which the trees are to be planted.

From the practice, then, of different cultivators, we may say that the soil should be richly manured, but I would say on no account apply crude or unrotted dung.

Temperature and Shelter.—Loudon says: "The standard temperature for the citrus tribe is 48 degrees; but in the growing season they require at least 10 degrees of additional heat to force them to produce luxuriant shoots. The air should never be allowed to fall under forty degrees, though the orange will endure a severe degree of cold for a few hours without injury." Humboldt observes: "The orange requires an average temperature of 64 degrees." I do not understand what Loudon means by stating 48 degrees as the *standard* temperature: I think he cannot mean the average. It requires a situation well sheltered from every cold wind, as a violent storm will sometimes lay the whole crop on the ground in a night, and in New South Wales it succeeds very well with-

in twenty or thirty miles of the coast, but cannot be cultivated at Bathurst or Argyle, on account of the severe cold. The orange plantations of St. Michael are always encircled by a wall of from 15 to 20 feet high, and within, a thick plantation belt of trees to protect the orange trees from the sea breezes. Even within these sheltered groves, the young plants, when first set out, are surrounded by plantations of laurel, broom, &c., until the tender orange trees are sufficiently strong, at which period the plantations immediately round them are removed, and each plant begins to shoot up. In England, even, this tree is enabled to bear the climate by a little protection; for at Saltcombe, Devon. there are in a few gardens orange trees which have withstood the winter in the open air for upward of 100 years; the fruit is as large and fine as any from Portugal; but I believe these are trained against walls. They are sheltered with mats of straw during winter. The climate of Portugal is rather too cold for the orange; they suffer much in the severer winters, and only do well on the low grounds and more sheltered situations. The tops of the trees are often injured by the cold winds in common winters, especially when they grow at all lofty. They bear the open air at Nice, Genoa, and Naples. But at Florence and Milan, and often at Rome, they require the temporary protection of a shed. With this knowledge, then, we cannot doubt that they will succeed in the present settled districts of Western Australia which lie between the darling range and the sea. It will be desirable, however, in the colder localities even within these limits, to raise plants *from seed, on the spot*, as these are found to bear the cold better than trees imported. As to our hill districts, I think it doubtful whether the orange will succeed in open compartments, on account of the lower temperature of the winter nights so far in the interior, produced by the greater elevation above the sea. It should be tried, however; and with shelter, as that of an awning of canvas, or temporary thatched roof during the colder months, it would no doubt do well. Probably the most effectual plan for protecting the trees from the cold would be to plant them on the western side of a wall. A row might be planted the whole length of the wall, and at the distance of about 8 feet from it, and the same distance apart in the row. Where the space will allow, a second row might be laid out 8 feet from the first. These latter will be almost as well protected as the first, and indeed quite so, if it happen that the ground slope much to the west; the object being to shade them from the morning sun, and to allow the temperature of the surrounding air to become somewhat warm before the direct rays of the sun fall on the trees—it having been found that the orange will bear a very great degree of cold if continued only for a short time; but sudden heat applied to the cold plants greatly injures them. Dr. Seckler says, "It is remarkable how much cold and snow the common oranges and lemons will bear at Rome, provided they are planted in a sheltered situation, not much exposed to the sun. Thus I saw in the two winters of 1805 and 1806, under my windows at Monte Pincio, three standard orange trees in the open ground heavily covered with snow for more than a week. The green leaves, but still more the golden fruits, nearly ripe, looked singular, but beautiful, amid the snow; neither fruits nor trees had suffered, being in a sheltered place, while many branches and leaves of other trees of this kind, which were exposed to the sun, turned black and died, rendering the whole tree sickly." As Knight has remarked. "It is more the sudden transition from cold to heat and the contrary, than the degree of either, which destroys vegetables." Another row of trees should be planted along the wall itself, say 6 inches from it, with the view of being trained to it as directed below, under the head of training. These trained trees sometimes produce large crops of fruit. It will sometimes happen that settlers, when laying out their homesteads, can so arrange their buildings that the western wall of either the dwelling or some of the offices may form the eastern fence of a garden or court, with a view to making it a protection for an orange grove. The projecting eaves will not injure the tree, as the orange will bear to be shaded; if, however, the rain be kept off by the eaves, the trees should have water dashed over them once or twice a week during summer, when not in flower. I believe the orange is the most hardy of the tribe; probably this only would succeed in the interior.*

* The orange is found to flourish best in a warm, fertile soil, composed of sand and loam, or sand and clay, not too dry, and sheltered from chilly and parching winds. But it is cultivated in varied soils, and will thrive in any country, with a mean annual temperature of 62° to 84° F. Hence the locality favorable to the growth of this species depends fully as much upon soil and situation as upon latitude; and we are induced to infer that if the temperature be sufficiently high for maturing the flavor, the fruit is delicious in proportion to the uniform salubrity of the air; and that those high temperatures which often force a very large expansion of fruit are against the fineness of its quality. For instance, we will contrast the fruit of St. Michael's in the Azores, of Bahia in Brazil, or of some of the West India Islands, with that of Malta. The former is always exposed to the equalizing breezes wafted across the Atlantic, while that of the latter, lying near the arid and sultry coast of Africa, is subject to more changes of season and a greater and higher range of temperature. There is also some difference in the soil of these places. The artificial earth, which forms the soil of Malta, was originally brought from Sicily; and by the decomposition of the rock, or of the saline particles brought by the same "pestilent sirocco" that blasts the fruit of the south of Italy and Sicily, a crust is formed, which, if not removed by trenching, at the end of a certain number of years ceases to be productive, or the oranges become so bitter that they are neither palatable nor healthful. But St. Michael's, Bahia, and the other places referred to, have no such disadvantage; the soils in those places are native, and deposit nothing calculated to injure their fertility or impair the qualities of their fruit. The same fact may be corroborated in comparing the climate of the slopes and valleys of the Estrella, near

Distances.—The distances at which orange trees are planted vary considerably. In a thriving grove I have seen them growing about 16 feet apart. It appears that in the neighborhood of Seville they are planted at the distance of 21 or 22 feet. We are informed that orange trees do best when planted rather wide asunder; lemons are better for being crowded together. This observation, however, is rather vague. For oranges against walls or trellises, plant about ten or twelve feet distance, allowing a larger space for the citron, lemon, and shaddock. I would say, then, having no information as to the distances of others of the species in open compartments, that any of them may be placed at 16½ feet aport each way, which will take 160 trees to the acre. This would give plenty of room for any of the sorts for a number of years, and if found too crowded, the superabundant trees—say the alternate rows—might be cut out. The distance for planting them appears to vary from 6 to 22 feet, according to circumstances. So long as plants may be obtainable at the low rate at which they now may, I should say that it could not be wrong to set them at the shorter of these distances one way at least, say 6 by 6, or 6 by 12; when found too crowded, each alternate plant or row might be taken out. I would, however, do this, only where the natural soil is suitable to the plant, or at least with the addition of manure, and with low-priced trees. Where much expense is required, as in digging deep holes, and bringing soil or compost from a distance; or in case of expensive worked plants, I would take 16 or 16½ feet as the distance. Under walls, also, or where the situation proper for them is very confined, I would adopt the plan of short distances for obvious reasons. The quincunx manner, the plants in one row being opposite the spaces in the next, seems preferable for plants at short distances at least.

Bearing Age.—In Europe the orange begins to bear fruit when about 6 or 8 years old. I am not aware of the age at which others of the species begin to produce. In Western Australia lemons have fruited in several gardens, and I am informed they are looking most promising this season. Probably the lemon, when not worked, is the more precocious of the two. The writer has had, during the seasons of 1842 and 1843, in his garden on the Swan, no less than five orange trees in flower or fruit. He believes these are the only oranges which have yet fruited in the Colony, though others have trees very much older and larger. This is attributable entirely to their *having been worked*. Two of these trees flowered *within two years from the bud!* the stocks not being an inch in diameter. Nothing can show more clearly the great effect of working trees—a circumstance far too little attended to in this country with all fruit trees. He has also had a lime under two feet high in flower, and has a citron now bending down with magnificent fruit.

the lower Tagus, and that of the maritime Alps, and the Appenines, in Provence and Liguria, with that of Andalusia. At St. Augustine, in Florida, the fruit is generally of a superior quality, owing to some peculiar influence of the soil and climate. The mean annual temperature of that place in 1842 was 73° F., and in 1843, 72°. The extreme heats from June to September are usually as high as 92°; but they have been known to reach 97°. The extremes of cold generally range from 38 to 40°; but sometimes the mercury has fallen as low as 30°. On the 9th of February, 1835, the time that nearly all the orange trees of Florida were cut off by frost, it is said that the thermometer indicated a temperature of 10 to 15°. In February, 1823, as well as in the same month in 1839, the trees also suffered in their extreme branches, from the effect of frost. On the morning of the 9th of January, 1765, the thermometer stood at 26° at St. Augustine, and the ground was frozen to the depth of an inch, on the banks of the St. John's. This extreme cold proved fatal to the orange and many other trees.

[*Browne—Trees of America.*

We must here stop short with our extracts. The subject will be concluded in the next number, in which it will be treated under the heads of Propagation, Budding, Grafting, Seed and Seedlings, Layers, Cuttings, Training and Pruning, Insects; together with a list of the varieties of the sweet orange, under the head Desiderata—concluding with a note on the subject of Insects which have proved so destructive to orange orchards in Florida. True, we have not as many readers as we could wish, in a region to which we plead guilty to the charge of partiality; but that is no reason why we should not have more; at all events, those we have there, are "*some*," in quality at least!

RENOVATION OF PEACH TREES.—The peach tree, in this climate, is liable to several diseases. When it is observed to sicken, no time should be lost in carefully removing the soil from the roots, and supplying its place with charcoal. A friend informs us that during the past season a very healthy tree in his garden suddenly sickened and began to cast its foliage. He adopted the measure above prescribed, and was surprised at the suddenness of its renovation.

THE COMMERCIAL REVIEW.

The first number of this work that we are aware of having seen, reached us on S—day, and we can only say, judging by that, we lament not having seen all—except the one in which our able and worthy brother says he "quarreled" with us about the *Patent-Office Report.* Where ignorance shields us from pain, would it not be "folly to be wise?" We will begin as soon as we can, to give the very interesting paper on the Culture and Management of Sugar; having ourselves failed to get, from friends to whom we applied, an essay on the same subject. We need hardly say that we were charmed with this Review, when we add, that we read it through "at a heat," as the smith would say. If the Editor, however, thinks the Patent-Office Report a becoming *National General Government exposition of the industrial resources and progress of this country,* why, all we have to say is, that his judgment makes us distrust our own; and we would make any sacrifice to agree, and yet more not to "quarrel" with him. Still, in respect of a thing that looks, in our eyes, so much like "*smoke*" we can't quite agree to say it looks "very like a whale." Will the Editor, nevertheless, say to his friends at Baton Rouge whether he thinks it would, or would not, be expedient for them to distribute The Farmers' Library, in bound volumes, as *premiums,* in lieu of the same amount *in lucre?* One thing in the Commercial Review which bears a peculiar charm in our eyes, is the liberal and generous manner in which it speaks of a kindred, if not a parent work, our friend and neighbor Hunt's most excellent and most popular periodical. Let us all, then, like fathers, sons and brothers, rival one another in seeing who shall do each other the most kind offices; or, if we do "quarrel," let it be like Ovid's "Lovers' Quarrels," the *renewal of love!* Such, thank God! is the editorial spirit that for thirty years has animated *this deponent!*

SOUTHERN AGRICULTURAL ALMANAC

THE AMERICAN AGRICULTURIST.

If we had Uncle Sam's long purse and long scissors, and did not think it would be unworthy of us, we should not desire a more valuable journal than we could slice, every month, out of the American Farmer, the Farmer's Cabinet, the American Agriculturist, The Cultivator, the Southern Planter and Southern Cultivator, and other journals. The last two, for some reason, we have not received for months. We cannot particularize the many things in them all, which we should like to copy; among them Mr. Affleck's dissertation, in the American Agriculturist, on the cotton caterpillar.

Mr. A. is in the heart of the great cotton region, with the requisite knowledge and spirit to enlighten his brother planters in all branches of husbandry adapted to their region and climate; and it is matter of congratulation for them that he has engaged to do it through the popular medium of an *Almanac,* under the title of "Norman's Southern Agricultural Almanac," of which the first of the series, the one for 1847, is already published.

From the (London) Farmer's Magazine.

SUPERPHOSPHATE OF LIME.

USE OF SUPERPHOSPHATE OF LIME, PRODUCED WITH ACID AND BONES FOR MANURE.

BY W C. SPOONER.

[Prize Essay of the Royal Agricultural Society.]

THE difficulties under which the pursuit of Agriculture has for some years labored—the importance, and, indeed, the absolute necessity of raising the largest crops of roots at the least possible expense, afford ample reasons for the Council of the Royal Agricultural Society of England proposing as a subject suitable for a prize essay, "The Use of Bones with Acid," which on high authority has been designated "the most important saving which was ever held out in the use of manure." If any additional reason were required why the utmost attention should be devoted to this important matter, and the most extended information gained respecting it, it may be found in the fact that while the constantly increasing population of this country demands a corresponding augmentation of animal and vegetable food, the sources of supply both of bones and guano are likely to become greatly diminished. Thus, not only as it affects the interest of the occupier and owner of the soil, but also on national grounds, is the subject of our essay worthy of the deepest consideration. The superior economy of employing bones mixed with an acid, over that of using bones alone, is no longer a hypothetical or even a probable statement, but an established fact; and though I shall have to offer some results in corroboration, yet I do not hold them as essential to the subject, so fully has the success of the mixture been established from the numerous experiments related in the Journal of the Royal Agricultural Society, and more particularly in the excellent and elaborate essays of Mr. Hannam. And though I shall find it necessary to pass rapidly over all the various branches of the subject, yet my claims for honorary notice will principally rest on affording such practical information on points hitherto but briefly attended to, as may, I hope, render this essay of really practical and pecuniary value to agriculturists in general.

The specific effect of bone as food for the turnip crop has long been known—long, indeed, before science was in a position to explain the cause of its peculiar effects, or to assign correctly to what portion of its constituents the benefits are chiefly due.

It was found, greatly to the surprise of many, that burnt bones, in which of course the organic parts had been destroyed, were equal, if not superior, in their effect to bones not so treated; and that when boiled, in which state the fat had been expelled, they were more productive than bones in a fresh state. It was thence supposed by those who jumped to conclusions too hastily, that the substances thus expelled were useless at any rate for the turnip crop, and they were apparently supported by the theory of a very eminent chemist, who, if we mistake not, laid it down as his opinion that the value of manures depended principally, if not entirely, on their inorganic ingredients—a doctrine altogether at variance with the previous generally received notions, that ammonia was the true fertilizing element, and that its amount afforded the measure of the value of manure. *In medio tutissimus ibis*—the truth, we take it, will be found to lie between the two extremes. We may justly regard the inorganic constituents as being the most important and essential portion of manure, affording to the plant what the skeleton does to the animal, the basis of support; and, as plants can obtain no other supply but through the soil, we may justly regard them as *the* most essential constituents.

The other elements are, to a great extent, supplied through the atmosphere, and even nitrogen and its combinations may thus be furnished. The avenues through which this atmospheric supply is furnished are the leaves of the plant, and their size affords a correct criterion, *cæteris paribus*, of the amount of nutriment derived from the aerial source. Thus beans and other pulse obtain more food from the atmosphere than cereal plants; roots more than the former; and wheat, from the small size of the leaves, less than any. Thus only can we account for the striking fact that if we give a good supply of inorganic elements *only* to the turnip crop, we shall very probably have a plentiful crop, while if these be absent, however rich the manure may otherwise be, the crop will be a failure. Not that we must therefore draw the conclusion that the organic manures are of little or no importance to root crops: they are of value, and particularly to the grain crops which succeed.

The organic matter which composes about one-third the substance of bones is, however, so intimately combined with the earthy portion, and their disunion is accomplished with such difficulty, that the good effects of either

are to a certain extent neutralized, at least so far as the first crop is considered; and we are consequently obliged to supply five or six times as much as the crop actually requires, and to render them available by means of pulverization. It is on this principle that the assistance of sulphuric acid is sought for and obtained: it serves by its chemical affinities to separate the component parts of the bones, and render them more soluble and available as food for plants. In the excellent and accurate experiments of Mr. Hannam, related in a former number of the Journal, it was clearly proved that fresh bones when ground were superior to boiled ones, from which the fat was extracted; and the latter were superior to burnt bones, from which the gelatine was also removed. This result was, however, far more striking when the bones were dissolved in sulphuric acid, a difference of nearly two tons of turnips being observed, while with the bones merely ground a difference of 17 cwt. only was exhibited. From the same experiment we likewise learn that the beneficial effects derived from the earthy part of bones are 4½ times greater than that derived from the organic parts. I refer to the Journal for the particulars of these experiments, and to the previous number for other statements, from which, if we had no other evidence, we should be justified in drawing the conclusion that 20s. laid out in bones and acid will go much farther than 40s. expended in bones alone, so far us the turnip crop is concerned.*

These experiments, however, appear to have been made with the addition of a very considerable quantity of water, so as to apply the manure to the land in a liquid state, which, without denying its superiority, is yet attended with such difficulty, trouble, and inconvenience, that it is vain to expect that farmers generally would incur it. The expense of a proper cart for the application of this manure in a liquid state is very considerable, and sufficient to prevent its general adoption. And, although it was in this form that the public were first made acquainted with its valuable properties, yet its general adoption must be attributed to the additional discovery that it can readily be applied in the state of compost by means of the common drill. Having directed my attention to the preparation and employment of this valuable manure in the form of compost, I am in a position to state that by its means one-half the usual expense in the purchase of bones may be saved.

We cannot, however, do better than take as our text, or rather the heads of our subject, the points to which the attention of competitors are drawn by the Council of the Royal Agricultural Society of England, which are—

1. State of Bones.
2. Proportion of acid in a given weight of bones.
3. Proportion of water, if any, mixed with the acid.
4. Mode of mixing the bones with the acid and of preparing the compost.
5. Effect of various quantities applied in combination or comparison with common bones and other known manures.

1. First, then, the state of the bones—with regard to which I have merely to observe that they should be as fine as possible, but the ordinary state of bone-dust will answer the purpose very well. The dust is decidedly preferable to half-inch bones, for, while the increased weight of the former will compensate for its greater price, the points of contact being greatly increased by subdivision, the bones are more rapidly and more perfectly acted on by the acid, and require, in fact, a less quantity both of that and of water.

We next come to the second and more important point.

2. The proportion of sulphuric or muriatic acid to a given weight of bones.

Sulphuric acid is preferable to muriatic acid for several reasons: it is stronger, cheaper, has greater specific gravity, and contains much less water. On mixing it with water, a much higher temperature is attained, which conduces to the dissolving process, particularly of the organic portion of the bones. In addition to these reasons, we find that in the trials which have been made, muriatic acid has been found somewhat inferior. I have, however, been rather surprised that there should not have been a more decided difference than proved to be the case in Mr. Hannam's experiments; and we can only account for this by bearing in mind that the lowest proportion of muriatic acid employed was one-half, which was perhaps sufficient to affect all the phosphate of lime contained in the bones, whereas, if one-third had been employed, as was tried with the sulphuric acid, the result might not have been so favorable for the muriatic acid. Besides this, probably the muriate of lime formed by the muriatic acid is more fertilizing and soluble than sulphate of lime formed by the sulphuric acid; and, from its great attraction for moisture, particularly advantageous in such a dry season as that of 1844. It is, therefore, by no means improbable that an equal quantity of bones prepared separately with the two acids, and afterward mixed together, might be more productive than bones prepared with either acid alone.

The proportion of sulphuric acid most desirable to employ is a very important point, inasmuch as it has been shown that sulphuric acid alone, or mixed with water, possesses very little fertilizing powers. This, probably, is owing to the circumstance of the soil generally containing a sufficiency of this element,

* May we not expect something like the same result when applied to other plants of large leaves—as Indian corn, and tobacco, and clover? We should be glad to attract to this subject the attention of friend Hollowel, or Mr. Teschemacher. [*Ed. F. Lib.*

and to the fact that phosphoric acid is so extremely essential, particularly in the early stages of the growth of the plant, that it will not prosper without it, whatever we may otherwise employ as manure. A neighboring agriculturist during the last year tried to raise a crop of turnips with a good dressing of salt and soot, which contain no phosphoric acid, though plenty of ammonia and other fertilizing ingredients, but the result was a total failure. In a garden experiment, I may here observe, I found sulphuric acid and water succeed as well as bones in raising turnips, but the soil no doubt contained phosphoric acid, as well as alkalies, on which the acid could act favorably.

Before we authoritatively pronounce on the quantity of acid necessary to be mixed with the bones, it will be better to inquire into the nature and properties of the substances we propose mixing together.

Sulphuric acid, or oil of vitriol, as it is more frequently termed, consists of the union of two parts by weight of sulphur with three of oxygen gas, and its strength depends on its purity and freedom from water, for which it has a remarkable affinity, so much so that if exposed to the air it will quickly absorb water from the atmosphere. Its relative weakness, therefore, is owing to the quantity of water mixed with it. In speaking of sulphuric acid, I must be understood to mean in its concentrated state, possessing a specific gravity of from 1·845 to 1·850. And it should be borne in mind, in purchasing the acid, that 50 lbs. of the above is at least equal to 60 lbs. of the specific gravity of 1·714, and therefore if the weaker acid is used, its quantity must be increased in proportion to the diminution of its strength.

On applying the vitriolized bone to the tongue, we find that it tastes both sour and sweet. The sourness arises probably from the phosphoric acid, and the sweetness from the gelatine sugar, which is formed by the action of the acid on the gelatine, converting a substance very difficult of decomposition into one readily soluble, and which can be easily absorbed by plants. When concentrated acid is mixed with a quarter of its weight of water, the temperature of the mixture is raised to 300°, and boils away at a great rate. The action of this heat on the animal part of the bones renders it of a dark color; but if a small quantity of acid only be employed, the mixture is white, from the carbonate of lime which then predominates. From an average taken from several analyses of bones of man and various animals, the following appears to be tolerably near the mean:

Organic matter, consisting of gelatine, cartilage, and fat	34
Phosphates of lime and magnesia	59
Carbonate of lime	7
Total	100

Or, in rough numbers, the organic matter may be regarded as forming one-third and the earthy portions two-thirds. Of course, if the bones are very fresh, the former will be in larger proportion than one-third; thus Mr. Hannam gives it as 45 per cent. The above, however, may be considered as a fair average in the state usually employed by farmers.

Four bushels of bones, which may be considered to be a fair allowance for an acre, will weigh, in a fine state of bone-dust, about 180 lbs.* This quantity contains 12½ lbs. of carbonate of lime, consisting of carbonic acid 5½ parts, and lime 7 parts, which will require 10 lbs. of sulphuric acid to convert it into sulphate of lime or gypsum. This is the first result of the mixture, and is the cause of the very unpleasant fumes which are given off, and which consist in fact principally of carbonic acid disengaged from the carbonate of lime in consequence of the superior affinity which lime has for sulphuric acid. This result takes place before the acid acts on the phosphates of the bones, and thus it is that when a small quantity of acid has been sprinkled over bone-dust, the good effect has been but moderate, the carbonate of lime alone has been acted on, and the phosphate of lime has remained undecomposed.

The quantity of phosphate of lime existing in the 4 bushels of bones is about 106 lbs., containing 47 lbs. of lime and 59 lbs. of phosphoric acid. If we consider super phosphate of lime to contain a double portion of acid—a fact, however, not quite decided—then 33 lbs. of sulphuric acid will be required, which by uniting with half the lime, or 23½ lbs., forms gypsum, and leaves the other moiety of lime united with a double portion of phosphoric acid in the state of a superphosphate. Thus, 43 lbs. of acid will be required to effect these changes, leaving any additional quantity for other purposes.†

Phosphate of lime is a substance very difficult of solution, and thus in a very dry season the effects of bones are often very slight and imperfect. Superphosphate of lime, on the other hand, is extremely soluble, so much so that the vitriolized bones can be entirely dissolved or suspended in water, and thus applied. This at once explains the cause of the valuable properties of the preparation. The bones in their natural state are extremely indigestible: the acid cooks them—converts them into a species of soup which can readily be eaten and digested by the young turnips. The adamantine fetters with which the various elements composing bones are bound so compactly together, are, by means of this new agent burst asunder—the compact is broken, and each constituent element is left to pursue its own course and to exercise its

* I find that the *average* weight of bone-dust, as it comes from the mill, is 168 lbs. per 4 bushels, although I *have* found it reach the weight stated in the text. [*Aut.*

† I do not mean to say that these are the precise changes which take place, but only an approximation to them. Probably some portion of phosphoric acid may be left in a free state in the prepared mixture.

own natural affinities. The chemical changes which take place between the sulphuric acid and the organic portion of the bones are, no doubt, very complicated. Sugar is one result, and probably sulphate of ammonia is another; but I cannot venture to state what quantity of sulphuric acid may be necessary to effect these changes. If we presume that one-third is the proportion of sulphuric acid employed, then there will remain 17 lbs. to act on the organic portion of the 4 bushels of bones—the remainder having been required by the earthy portion.

We find that manufacturing chemists, in the preparation of phosphorus from bones (now largely required for lucifer matches), first destroy the organic part of the bones by means of fire, and then mix the remainder with half its weight of sulphuric acid. Thus, if we suppose 180 lbs. to be the quantity employed, by burning it will be reduced to 120 lbs., requiring 60 lbs. of acid to form superphosphate, which would be one-third the weight of the bones previous to burning. I suppose, however, that in this case an excess of acid is required to render the process complete, as one-half would otherwise appear to be more than the quantity demanded.

From these and other reasons we may justly consider that the proportion of acid to the bones should never be less than one-third nor more than one-half. The former, I think, is the most economical, but probably the precise quantity most desirable will be 42 per cent. of acid. I may, however, observe that in an experiment during the last season, in which one portion of the land was manured with bones and acid in different proportions, that which had more bones and less acid proved to be a somewhat better crop than where fewer bones and more acid were used; the expense being the same in both instances.

3. The proportion of water to be mixed with the acid will next receive our attention.

When one part by weight of water is mixed with four of acid, the temperature is raised to 300° Fahr. It is, therefore, very desirable that sufficient water should be used to produce this great heat, which facilitates the dissolving process; and the quantity above stated, or, if more convenient, the same measure of water as of acid, which will be rather more than half the weight, will be a very good proportion. More should not be used, as no useful purpose will be accomplished. In an experiment tried last year with different proportions of water, I could not detect any difference in the result. The water should be applied first by means of a watering-pot, so that it may be intimately combined with every portion of the bones. This is an important point, and greatly facilitates the dissolving process, which without it is very likely to be imperfectly accomplished.

Another reason for applying the water first is, that the bones becoming partially saturated, the acid, from its great affinity for it, rushes as it were into the pores of the bones in search of the water, and thus the bones become more rapidly and perfectly mixed with and acted on by the acid. When no water is employed, and the bones are not entirely in the state of fine dust, as they never are unless purposely sifted, the surfaces of the small pieces of bone become acted on by the acid, and a coat forms around them which seals up the interstices of the bones, and prevents the acid from penetrating. I have no doubt this is often the case likewise from careless or imperfect mixture, and the good effects of the manure are thus materially diminished.

4. Mode of mixing the bones with the acid, and of preparing the compost.

It has been recommended that a large heap of ashes or mould should be made with a hole or depression on the top, in which the bones are to be placed, the acid poured over them, and after some time the whole shoveled up and mixed together. Now, if we examine into the effects of this mode of procedure, we shall readily perceive the objection to which it is subject. The ashes, no doubt, contain a considerable portion of carbonate of lime, besides other salts, for which sulphuric acid has a very strong affinity. Thus the bones are robbed of a large proportion of the acid, of which they ought to have exclusive possession. And even if common mould is used, or any other substance which has no particular chemical affinity for the acid, still this mould will mechanically absorb much of the acid, and thus deprive the bones of it.* I hold it, therefore, as a point of much importance that the whole of the acid should be directly applied to the bones, and that no other substance should be allowed to intercept or abstract their mutual affinities.

A very convenient and cheap vessel for manufacturing the mixture is a sugar hogshead, having its hole stopped with plaster of Paris. It is very desirable to avoid if possible any measuring or weighing of the acid, as it is so very dangerous a substance to handle. Many serious accidents occurred to my knowledge during the last year, and it is very difficult to impress farm servants with a sufficient degree of caution, or even to convince them that a liquid which appears so colorless will burn their skin and clothes. In emptying a carboy of acid even into a tub it is difficult to prevent a little slopping about and damaging the clothes of the attendants, as well as the basket, &c., which contains the carboy. To prevent these unpleasant consequences I have adopted the following plan: The carboy is placed on a stage or cask the same hight as the sugar hogshead, into which is put the precise quantity of bone-dust we intend mixing with the carboy of acid. The water is now added with a watering-pot hav

* I have not found that any considerable quantity of the acid passes through the bones into the heap of ashes or earth; and though Mr. Spooner's is the better plan, where his apparatus can be easily procured, I still think that the expedient I mentioned may be found sometimes convenient. [*Ph. Pusey*

ing a rose at the end, so as to disperse it thoroughly, and the carboy of acid is then emptied by means of a siphon. This siphon is formed of a piece of block-tin pipe, which can be bent into any form, about ¾ of an inch in caliber, and 4 feet in length. A brass cock is soldered to the long end of the siphon, on which the rose of a watering-pot may be placed. The siphon is now filled with water, and its long end closed with the cock, and the small end with the hand or finger. The latter is then quickly inserted into the mouth of the carboy, the cock turned on, and the acid will continue to flow till the vessel is nearly empty, without any assistance, so that the attendant has no occasion to expose himself to the injuries and offensive fumes which almost immediately begin to escape. He may, however, approach the windward side of the tub, and give the mixture a little stirring, which should be continued for some little time afterward, so that the mixture may be complete. A convenient utensil for this purpose is a fork with two grains, long in the grain, bent at some distance from the grains nearly at right angles, and fixed in a wooden handle. On the same day a fresh lot of bones may be added, and the process repeated until the hogshead is nearly full. In two days afterward the mixture may be shoveled into a heap, and either remain till wanted or mixed at once with a certain portion of ashes. It should be shoveled over several times and ashes added at each time of turning, which will thus render the mixture fine and dry enough to pass through an ordinary drill.

It must be evident that much of the value and economy of the manure depends on its being perfectly mixed, so that every particle of bone should be exposed to the action of the acid. In many cases I have no doubt this has not been sufficiently attended to, and the result has been either that more acid has been used than is really required, or that much of the advantageous effects has been lost.

By the method which I have here recommended, and which I have adopted after many trials, the mixture can be readily and accurately manufactured, and with perfect safety to the attendants.*

5. Effect of various quantities applied in combination or comparison with common bones and other known manures.

My own experience of the advantages of sulphated bones commenced in the very dry summer of 1844. Wishing to try their effects, and thinking that it was highly desirable to apply them as a compost by means of the drill (though I had not heard of any instances in which they had been so used), I resolved to make the attempt. I intended to apply the bones at the rate of 3½ bushels per acre, and half their weight of acid: but from not making sufficient allowance for the dampness of the manure, it extended over a large portion of land, so that little more than 2 bushels per acre were used with about 16 bushels of ashes. On the same day (in the early part of July) other portions of the field were drilled with bone-dust at the rate of 16 bushels per acre, and some parts with South American guano. The bones and acid Swedes were the first to appear, and their tops grew most luxuriantly. The turnips suffered from not being hoed till they were too forward, but the crop throughout the field (considering the late period of their being drilled, and other unfavorable circumstances) was a very fair one, about 14 tons to the acre. The bones and acid portion was fully equal to the rest, and indeed somewhat better than where 16 bushels of bones had been applied to the acre.

Every alternate ridge was carted off, and the remaining half fed off by old ewes with no other food, with the exception of a little inferior hay. The field was then sown with dredge (a mixture of beans, barley and peas), and the crop was a very excellent one; that where the vitriolized bones had been used was at the least fully equal to any portion of the field, and indeed somewhat superior to that dressed with bones alone. Thus it will be seen that the manure answers perfectly well so far as the second crop is concerned; and there is now the prospect of a good clover crop.

The result of the preceding year having fully satisfied me as to the value and economy of vitriolized bones, I did not think it necessary to test their merits against other manures during the last season, particularly as other equally successful experiments had been tried and published.

But, wishing to ascertain the most economical proportion of acid to be employed, I prepared two lots for a field of 6 acres. In one the bone-dust was at the rate of 4 bushels to the acre, and the acid one-third: and in the other the acid was half the weight of the bones, but the latter was diminished so as to reduce the cost of both lots to the same sum. The mixture in each instance extended over half an acre more than was intended, and was mixed with equal portions of ashes, viz. about 20 bushels to the acre.

The Swedes came up well, and, though attacked by the fly, soon got out of its way, and proved a very good crop. The average of the field, however, was very much reduced by the great quantity of hedge-row timber by which it was surrounded, and which spread its blighting influence a considerable distance. However much these trees might add to the beauty of the landscape, they certainly destroyed most effectually the beauty and uniformity of the turnip crop, and reduced the average of the field several tons per acre. A good portion of the field appeared to average

* In manufacturing a considerable quantity of the mixture to meet a large demand for the present season (1846), I have found much advantage from constructing various utensils of different shapes, so as to perfect the mixture without inconvenience to the attendants, as well as from other improvements in the manipulative process. [*Aut.*

about 22 tons per acre, and the half where the larger quantity of bone-dust with one-third its weight of acid was used, proved superior to the other, though whether to be attributed to the difference in the manure, or to the fact of that part of the field being somewhat drier, it is difficult to say.

The field was a clay loam on the London clay, and was partially drained.

I also supplied various agriculturists in my neighborhood with vitriolized bones, prepared in the proportion of 4 bushels (180 lbs.) of bone-dust, and 60 lbs. of concentrated sulphuric acid, which I recommended to be applied to an acre when no other manure was employed. The result in nearly every instance has been decidedly favorable.

Mr. W. Gater, of Westend, employed it at the rate of 2 bushels of bones to the acre, in addition to a fair dressing of farm-yard dung. On a portion of the field the dung was used alone. The former was fit for the hoe several days before the latter; and on weighing portions of each, in January last, there was a superiority of 5 tons to the acre in favor of that portion which had received the addition of sulphated bones.

Mr. J. W. Clark, of Timsbury, used the manure which I supplied him with in the same proportions also, in addition to farm-yard dung, and the Swedes proved the best on his farm. The amount of vitriolized bones used per acre varied in different parts of the field, and the goodness of the crop precisely corresponded to the quantity applied.

Mr. J. Blundell, of Bursledon, also used it at the rate of 4 bushels of bones to the acre, with 6 bushels of ashes in competition with night-soil and ashes. On visiting his farm a few weeks afterward, I noticed, at several fields' distance, the superiority of one portion of the field, which I found was that on which the vitriolized bones had been used. The dampness of the season, however, proved so favorable to the development of the other manure that, on weighing them in December, the latter was found about half a ton per acre heavier; the expense, however, was nearly double. The weight of the crop was between 17 and 18 tons per acre. I have no doubt that if Mr. B. had applied 20 bushels of ashes to the acre, instead of 6, with the sulphated bones, the result would have been much more favorable. When we bear in mind the large amount of potash contained in the crop, it must be very evident that it is of importance to supply a good quantity of ashes which contain a fair proportion of potash; I would therefore recommend that 20 bushels of ashes per acre, at least, should always be employed.

Mr. Pocock, of Hickley, used the manure at the rate of 4 bushels per acre, and one-third acid, and was well pleased with the result, though he did not ascertain its amount.

Mr. Withers, of Luzborough, was another farmer to whom I furnished a quantity, prepared as before mentioned, and he reports very favorably of the results.

Mr. Fielder, of Sparsholt, was induced by my representation of its favorable effects to try the manure, and he found that on his light land on the chalk it answered admirably.—Two bushels of vitriolized bones with ashes successfully rivaled a small portion of ground drilled at the rate of 60 bushels of bones to the acre for the purpose of experiment.

Although the vitriolized bone has proved very successful with white turnips, I believe that its peculiar excellences are most fully proved by Swedes. I wished to ascertain this by experiment, and accordingly on the same day and on similar land, a clay loam, 3 acres were drilled with Laing Swedes, and 3 acres with Matson's white globes after tares. The Swedes proved decidedly superior both in the early and later stages; and though the roots, as might have been anticipated, were but of moderate size, in consequence of the very late time of drilling (early in August), yet on comparing a few rods without manure the difference was very striking. A small portion of the globes, drilled with ashes alone, also exhibited a similar inferiority.

It should be observed, however, that in this experiment the land was probably more suited for Swedes than white turnips; but, on the other hand, the lateness of the season was more unfavorable to the Swedes, besides which the crop previous to the globes had been manured with stable-dung, while the other field had received no dressing since 1843.

Supposing that these results are to be attributed to the greater suitability of the manure for Swede, and not owing to other causes, the result is certainly in keeping with the comparative analysis of the ashes of Swedes and white turnips, which tells us that the former contains 403 lbs. of phosphoric acid, and the latter only 73 lbs. in 100,000 lbs. each.

It must be evident from this circumstance that white turnips do not require so large a quantity of bones, whether vitriolized or not; and it also corresponds with the well-known facts that Swedes require a larger quantity of dung to supply the necessary phosphoric acid, and also that white turnips on favorable land can be raised with ashes alone far more easily than Swedes.

I would therefore recommend in all cases, with white turnips, that a less quantity of vitriolized bone be employed, and that guano, or some other manure possessing its properties, should be used in combination with it.

In May last, a portion of land, consisting of 1½ acres, was drilled with Matson's green top globes, and manured with 1 bushel of sulphated bones, 1 cwt. of African guano, and about 25 bushels of turf-ashes, per acre. The crop was a very good one, exceeding 20 tons to the acre.

In several instances within my own knowledge, where guano has been used with ashes, the crop has been destroyed by the pungency of the manure, probably owing to the ammonia which it contains. There is no danger of

this taking place with vitriolized bones; and I have found, though seeds will not vegetate if entirely surrounded with them, they readily will if the manure is mixed with twice its weight of mould.

The last season has not been a favorable one for displaying the peculiar advantages of vitriolized bones; or, rather, it has been from its wetness so favorable for common bones, and every other description of manure, that an indifferent field of turnips has been the exception and not the rule. It is in a dry season, when the fly is particularly rife and active, when crop after crop is destroyed by this entomological pest, that the advantage of insuring a vigorous growth to young plants is properly appreciated. Among all the specifics or antidotes for the fly, there is none, I believe, equal to the employment of vitriolized bones. Hitherto I have not met with or heard of a single instance in which it has failed to force the plants out of the way of the fly. It is in a dry season, too, that the advantages of early and vigorous growth are shown, when the plant may languish for weeks for want of rain with ordinary manures, and thus lose time that never afterward can be compensated for.

In a garden experiment tried on a small scale, to show the effect of different preparations in forcing the young plant out of ground, I found the following results:

1. Vitriolized bone applied in solution above the seed caused the plant to appear on the fourth day.

2. The same applied below the seed brought up the plant on the fifth day.

3. Vitriolized bones as compost brought up the plant on the sixth day, both when applied above and below the seed.

4. Sulphuric acid and water below the seed caused the turnip to make its appearance on the sixth day.

5. Bone-dust below the seed brought up the plant on the seventh day, the same time as it appeared where no manure was employed.

In the above instances, with the exception of the fourth, the expense of the manure was the same in each case.

General Conclusions.

From the facts and reasons which we have detailed and urged in our preceding Essay, as well as from information supplied by previous experimenters, we may deduce the following conclusions:

1. That superphosphate of lime is the essential manure for turnips, and particularly for Swedes. That with it alone a good crop can be raised; but without it the turnip will not thrive, however rich the manure may otherwise be.

2. In preparing the mixture, the bones should be in as fine a state as possible.

3. That sulphuric acid, from its greater strength and cheapness, is preferable to muriatic acid.

4. That water, in the proportion of one-half the weight of the acid, should be first sprinkled over the bones.

5. The proportion of sulphuric most economical to employ should not be less than one-third, nor more than one-half the weight of the bones, and that probably the medium between these two quantities is most advantageous.

6. That the mixture can be applied either diluted with a considerable quantity of water by the aid of a water-cart, or with ashes by means of an ordinary drill. That though the former may be more speedy in its effects, the latter can be more conveniently applied, and has the advantage of admitting the addition of a large quantity of ashes.

7. That vitriolized bones may be used either alone or with other manures, and that when the latter are at hand, it is more advantageous to use the former in combination with them. For instance, if there are 30 acres to be prepared, and only sufficient dung to dress 15 acres, it is better to give a half-dressing of dung over the whole of the turnip break, and make up the deficiency by means of sulphated bones. Thus the plant will be forced in its early, and supported in its later growth. For the same reason, vitriolized bones may be advantageously combined with guano.

8. That vitriolized bones are equally advantageous to the second year's crop, when the turnips are either wholly or partially fed off with sheep.

9. That, while the economy of this manure is thus proved by practice, it can be as readily explained by theory, *e. g.:* The tops of Swedes are known to possess double the phosphoric acid contained in the bulbs. Thus the superphosphate of lime in the manure causes the rapid development of the leaves—one of its peculiar properties. The leaves being thus early and largely developed, are enabled to extract a considerable portion of nourishment from the atmosphere—much more, indeed, than where the leaves are small and backward. The difference between the amount of food derived from the atmosphere by a forward and flourishing crop, and that obtained by a backward and dwarfish crop, is so much absolute gain to the farmer, or rather to the land. It costs nothing on the one hand, but yields considerably to the land if the crop is fed off on the other. A manure that would thus force on the turnip in the early stages of its growth, was long felt to be a desideratum by agriculturists. This want has now been supplied; and even if this were the only recommendation sulphated bones possessed, its discovery and introduction would still be a boon.

Lastly. The value of vitriolized bone may now be considered to be fully and fairly established. Its claims rest not on the assertions of a few experimenters. It has been tried during the last season by hundreds with success, and in the next it will be tried by thousands. It affords, in fact, a triumphant

answer to the question—What has science done for Agriculture?

Southampton, Feb. 27, 1846.

*** The preparation of bones for turnips, as described by Mr. Pusey (being heated with ashes), and other substances, has been long practiced with success; and this preparation causes a softening of the substance so much that the smaller parts become immediately proper for the food of plants.

J. KIMBERLEY.

LIQUID-MANURE CART,

FOR FIELD-CROPS, GARDENS, AND TOBACCO-BEDS.

We rarely see one of the carts at work, sprinkling the streets so evenly and handsomely, to lay the dust in the towns, without thinking how useful such a contrivance would be, on every farm or plantation, to water, and at the same time manure, lawns and tobacco-beds, and small squares or beds, such as plant-beds, strawberry-beds, &c. and in gardens. Quite sure we are that no mechanic in a town would suffer, in his business, the vital damage that the planter suffers for want of early plants, if any particular difficulty in his way could be obviated as easily as the planter might do this, if he has only water at command—and that every farmer should have who has *roofs on his houses.*

Let a plant-bed be made—a permanent one, adjacent to water. If the soil is not exactly suitable, a permanent one may easily be *compounded and made* there; and then how easy it would be, in dry weather, to water one large bed, once a day, if necessary, by means of one of these *liquid-manure carts*, either with water alone, or the water might be impregnated with some fertilizing substance, as *guano*, or *tobacco*, or *the litter of stables or the cow-yard.* Besides this, a machine for sowing grain or plaster would serve to sprinkle lime, or ashes, or other manure, or even *common "road dust;"* or this might be done by hand, and some appliance of this sort might, perhaps, serve not only to manure the plants, but to *destroy or prevent the fly.* This suggestion is hazarded on the following remark of Mr. Baker, a learned entomologist, in a late number of the London Farmer's Magazine. We shall give the whole of his lecture "On Insects Destructive to Growing Crops," if we can command room for it in this number. But the particular observation applicable to our subject here is one relating to the *turnip fly.* "The best mode of getting rid of these insects," he says, "is by a very simple process. I am quite satisfied that there is no method so good as the application of *common road-dust*, which should be strewed with the hand upon the rows of plants, early in the morning, when the dew is upon them. It will be found that they will not touch any of the plants upon which the dust has fallen." Now although it does not follow that road-dust will repel the attacks of the fly so destructive to the tobacco-plant in the bed, yet it may do it; and the experiment is easily made.

Let the planter and the farmer be ambitious to discover remedies for himself against the calamities that overtake his labors, and not ingloriously wait for these discoveries to be made by other classes, or for suggestions to come from other countries than his own.

How many of the improvements in agricultural implements have been struck out by the ingenuity of *practical farmers?* One or two occur to us at the moment: the *horse-rake*, invented by Pennock, of Delaware—a practical Quaker

farmer, we believe—who is also said to have improved on the English *drill machine;* but we know not exactly in what that improvement consists, although we have endeavored to get a history and drawings to explain it, and to secure for him the enduring record of the credit and gratitude to which he is entitled, even above that which is reserved in our republican country for blood-stained patriots.

To return to this liquid-manure cart. It might often happen that the use of it would not be needed, still it might be used for spreading the liquid manure, which ought to be collected at least from all stables to be hereafter constructed.

Spaces might be left in these beds, unsown, at distances corresponding with that between the wheels of the cart, and one between for the horse or ox. One ox would be all-sufficient. The *spreaders*, attached to these carts, admit of being so regulated as to distribute the contents of the hogshead more or less freely.

The best liquid-manure cart would be a good subject for a premium to be offered by our agricultural institutes and societies. The one here described has lately obtained the premium at several agricultural exhibitions in Scotland, where the progress of agricultural improvement, especially as it is promoted by the application of science and mechanical ingenuity, is at this day, probably, more marked and visible than in any country on the globe.

"It may not be out of place to notice, under this head, a liquid-manure cart, of a very approved construction, which was invented a few years ago by Mr. George Morice, Kenmuck, near Keith-Hall. The cask for containing the liquid is mounted upon an axle and wheels, which are attached in the usual manner to a pair of shafts. The machinery for maintaining the cask always in a horizontal position, and for regulating the discharge of the liquid, is both simple and ingenious.—At the foremost end of the cart is fixed what is technically termed a 'bridle,' with a mortise in its center, in which works an upright bar of iron perforated with a number of holes, and fastened to the cross-bar of the shafts.—Attached to this bridle, and within reach of the driver, is a lever, by means of which either end of the cask can readily be elevated or depressed to suit the irregularities of the ground, or in traveling up or down hill. From the circumstance of the cask being maintained in a horizontal position, the weight on the horse's back, as well as the pressure on the discharging apparatus, is always uniform, however uneven may be the surface of the ground. The apparatus at the posterior end of the cask, for regulating the flow of the liquid, is also very simple and effective. The discharging orifice is furnished with a 'shutter,' which is opened to any required extent by means of a short lever, and attached to it is an iron pipe for conveying the liquid into the spreading box. This short pipe is closed at its outer extremity, but is provided with two apertures, one on each side, through which the liquid, in escaping from the cask into the spreader, diverges equally to both sides. By means of the lever and shutter, the flow of the liquid can be regulated to any required quantity, while the perforations in the bottom of the spreader admit of being widened or narrowed, as may be found necessary. The spreading box is commonly seven and a half feet long, but can be made to any required length, and is easily detached from the cart after being used. The wheel-rims are five inches in width, that the grass may not be injured or cut up, and the axle is curved downward to allow the cask to be kept as low as possible. The weight of the whole cart when the cask (which contains 118 imperial gallons) is full, is 19 cwt. This liquid-manure cart has obtained a prize at each of the annual competitions of the Aberdeen, Banff, and Kincardine Agricultural Association. The inventor is at present attempting some farther improvements. The price at Aberdeen is £10 10s." [$52.]

☞ The water in which potatoes have been boiled, sprinkled over grain, plants, etc. completely destroys all insects in every state of their existence from the egg to the fly.

We cut the above from a paper, and it *may* be so, but all that is in print is not gospel.

HOGS.

This is a subject on which every one likes to be allowed to *cut and come again.* If any one desires to see it "*done up brown,*" that is, *well done,* let him look at The Cultivator for October and November. We wish we had room for these articles. The writer has evidently "eaten salt" with practical farmers, if he be not one himself, and knows "a hawk from a handsaw." He designates clearly the difference in the quality of various breeds of swine, and why and wherein it is that a breed eminently suited to one locality and purpose may be as eminently unfitted for another. We have put extracts from these articles aside for early insertion.

Of the (Captain John) Mackay breed, so highly and justly praised, the writer says truly that "only a few of them now remain which retain the characteristics of the originals in such a degree as to be recognized."

On this, as well as on all subjects near akin to it, Major Jacques, of Massachusetts, stands at the head of the well informed; and he told us, we remember, some 18 months since, how Mr. Webster had sent a long distance for a genuine *Simon Pure* of this breed, and which we believe he has now at Marshfield.

If we have not given much space to this subject, it is under the impression that it is one with which most farmers are familiar, and that it is altogether so much within the control of every farmer to modify and manufacture his hogs to his liking and purposes, that very little new can be said about it. The Cultivator gives about all that need be noted.

Forty years ago, the "*Parkinson*" was the best breed of hogs in Maryland and Virginia. He was a spotted hog, but much lighter in color than the Berkshire—white, with black spots, rather than black, with white spots; stood on a stronger foundation; was square built, like a Dishley sheep, with a good ham, and activity and constitution to travel in search of his victuals, instead of having it brought to him. But, in our judgment, the best breed of hogs ever brought to this country was a black hog, sent many years ago—say twenty, at least—into Maryland, to the Editor of this Journal, then Editor of the American Farmer, by a Mr. Wright—brother-in-law of Charles Champion, from whom we imported the bull Champion, and heifers White Rose and Shepherdess; also the bull and two heifers for Gen. Van Rensselaer, that were brought into this State. Mr. Wright came consigned to us, and of course, as was then our wont and delight, we did the best we could by him, as a "stranger within our gates." We did not leave him to be fleeced by tavern-keepers, for we took him to ourselves. After going to many Agricultural Fairs, and being well pleased, on going away he said: "Well, Mr. Skinner, there *is* one thing I can send you better than any in your country, *and that is hogs!*"—and accordingly he sent a *black boar and sow;* such animals for shape of the right sort, and meat of the right sort, as we have never seen, before or since. The breed was sent into Virginia, where it got the name of "Skinner's breed," and has been much inquired for lately.—Heartily do we wish the name may never belong to anything worse; for what can man or beast do better than well fulfill the highest purposes for which Nature designed him? True, a hog is a glutton, and so is man; but, while re-

pletion is congenial to the constitution and growth of the hog, the gluttonous man surfeits himself against light and reason, to the destruction of his health and his usefulness.

True, too, the stronger hog will beat off the smaller, and rob him of his corn, or potatoes, or apples; but does not, all the world over, the stronger nation trample on the weaker (as the hawk devours the sparrow), and go out of his way to take their lands or—*knock out their brains?* What have we done with the Indians, who owned all this country as much as a man owns the pen in his hand?

Well, of these superb English black hogs, we sent a pair to Gen. LAFAYETTE, and the old General, (blessed be his memory!) whenever distinguished Englishmen and foreigners would go to LA GRANGE, would take them out to his barn-yard, and show exultingly and boast of his *American hogs!* "There," would he say, "you have no such *hogs as these in England!*" By the by, the old General's chamber looked out upon his barn-yard, to the economy of which he paid great attention. It was one of his *habits* to go, the first thing every morning, to the barn-yard, carrying in his pocket a *hard-boiled egg*, and the first animal attended to was a *one-eyed American Raccoon;* to whom, with his own hand, he gave the egg for his breakfast.

We were going to give some extracts from The Cultivator, but, as they would necessarily be brief, we think it better to postpone; and, besides, we much doubt the propriety of our copying much, if anything, from American agricultural journals, for two reasons: first, we have a right to presume that we could not return the obligation we should be under in eating out of their basket, since they never dip into ours; and secondly, because we hope all these cheaper papers are taken, and that more for their merit than their cheapness, by all our patrons, as *we sincerely think they should be.*

VIRGINIA LANDS.

MR. EDITOR: I herewith give you some extracts from a letter I received from a friend of mine who is now living in Surry County, Virginia. You are aware that much is said and a great deal written and published about the advantages of going to Virginia, to buy land, and farm. Feeling an interest in giving the experience of others well calculated to judge, for the benefit of your readers, I have copied part of the letter in order that some might be benefited—the writer is a gentleman somewhat advanced in life, raised a farmer, and always followed farming; he had a good training and good land to operate on, in a part of Chester County, Pa., that will compare with any other land in the State, at least in any other part of Chester Co. Added to this, he is an agricultural statistic—a plain, blunt man, who writes what he thinks and sees, without fear of being called in question by any. I had written to him and stated several points that I wished information on. His letter takes these up separately and answers them very satisfactorily.

"SEPTEMBER 1, 1846.

"Never in my recollection have I enjoyed good, uninterrupted health so long, as since I came here, and all the family have been well except M., who has had something of her old complaint (I believe erysipelas.) I see nothing here indicative of sickness; if people anywhere would live as many do here, they would be sickly—out late at night, hunting, and going home drunk, and reckless of every means to preserve health. If not so, why the undue proportion of sickness and death among the males, which is about 4 to 1? In most countries they are about equal. I do believe, all things considered, there cannot be a better place to live in—a more delightful climate. I have felt far warmer weather in Pennsylvania than here; and my Philadelphia newspaper says it has been warmer at New-York than here. We have as kind neighbors as ever honored a neighborhood; some of them have endeared themselves to us beyond what you could imagine. I speak advisedly when I say, a man can fix himself here better for $1,000 than he can for $10,000 in Pennsylvania. Two gentlemen, one from near Lancaster and one from Franklin Co., were here to see the place, through a letter I wrote to Rev. M. B. They all like the place very much, and wonder why I should

be the first discoverer. One of them was looking at a place of 600 acres, price $4,000; he told me while looking at the land, that he could sell his place of 120 acres before he got home, for $131 per acre, $15,720, and he was sure, if he was a young man, in seven years he could make the place here as good as his own. Only look at that! He is a man of intelligence, and owns one of the best farms in Lancaster County, and was attracted here by M. B. reading to him a paragraph of my letter. Why, sir, there are inexhaustible marl beds here, that on analyzation contain 97 per cent. pure lime. Pequa lime, Chester Co., Pa., contains 20 per cent. magnesia, a very deleterious article in Agriculture. I have seen the western parts of Pennsylvania and Virginia and the eastern part of Ohio, and have read and heard much of other parts, and am free to say, there is none equal to this."

[American Farmer.

WHAT THE FARMER WANTS.—Next to good crops, the farmer wants a market for them. He will sow, he will reap, he will labor in vain, if at the end of his toil he can find no price, no market, no vent for his produce. "We now realize, beyond a cavil or a doubt," says the Trenton Gazette, "that England and Europe will not afford this market. With her ports almost free to whatever we please to send them, with but a moderate duty upon bread stuffs, with wants greatly enlarged by a deficiency in her own crops; yet we find England fairly gorged with our produce, and unable to consume the tenth part of what we have to spare. It is certain, therefore, that we cannot send it there. Some other outlet must be found for it—some other demand created. Home industry—the diversified and well paid labor of our own country—the increase of the class of consumers among ourselves—these only can supply the indispensable encouragement and support to Agriculture."

PRICES CURRENT.

[*Corrected, November* 21, *for the Monthly Journal of Agriculture.*]

ASHES—Pots, 1st sort	℔ 100 lb.	5 —	@ 5 12½
Pearls, 1st sort, '46		5 75	@— —
BEESWAX—American Yellow		— 27	@— 27½
CANDLES—Mould, Tallow	℔ lb.	— 9½	@— 11
Sperm, Eastern and City		— 26	@— 38
COTTON—From	℔ lb.	— 8½	@— 11½
COTTON BAGGING—American		— 10½	@— 13
CORDAGE—American	℔ lb.	— 11	@— 12
DOMESTIC GOODS—Shirtings	℔ y.	— 5	@— 11
Sheetings		— 6½	@— 15
FEATHERS—American, live		— 25	@— 30
FLAX—American		— 7	@— 7½
FLOUR & MEAL—Genesee	℔ bbl.	5 37½	@ 5 50
Troy		— —	@— —
Michigan		5 25	@ 5 37½
Ohio, Flat Hoop		5 25	@ 5 37½
Ohio, Round Hoop		— —	@— —
Ohio, via New-Orleans		— —	@— —
Pennsylvania		— —	@— —
Brandywine		5 50	@— —
Georgetown		5 50	@— —
Baltimore City Mills		— —	@— —
Richmond City Mills		7 —	@ 7 25
Richmond Country		5 50	@— —
Alexandria, Petersburg, &c.		5 50	@— —
Rye Flour		3 75	@ 4 —
Corn Meal, Jersey and Brand.		3 93¾	@ 4 —
Corn Meal, Brandywine	hhd.	18 —	@— —
GRAIN—Wheat, White	℔ bush.	1 15	@ 1 20
Wheat, Red		1 05	@ 1 08
Rye, Northern		— 77½	@— 78
Corn, Jersey and North	(meas.)	— 78	@— 80
Corn, Southern	(measure)	— —	@— —
Corn, Southern	(weight)	— 73	@— 75
Oats, Northern		— 36	@— 37
Oats, Southern		— —	@— —
HAY—North River in bales	℔100 lb.	— 40	@— 45
HEMP—American, dew-rotted	ton	85 —	@95 —
" " water-rotted		130 —	@185 —
HOPS—1st sort, 1845		— 9	@— 12
IRON—American Pig, No. 1		30 —	@32 50
" Common		22 50	@25 —
LIME—Thomaston	℔ bbl.	— 83	@— 85
LUMBER—Boards, N.R.,	℔M. ft. clr.	30 —	@35 —
Boards, Eastern Pine		11 —	@13 —
Boards, Albany Pine	℔pce.	— 10	@— 18
Plank, Georgia Pine	℔M. ft.	27 —	@30 —
Staves, White Oak, pipe	℔ M.	40 —	@— 45
Staves, White Oak, hhd		40 —	@— —
Staves, White Oak, bbl		30 —	@— —
Staves, Red Oak, hhd		24 —	@26 —
Hoops		25 —	@30 —
Scantling, Pine, Eastern		— —	@15 —
Scantling, Oak		30 —	@35 —
Timber, Oak	℔ cubic foot	— 22	@— 33
Timber, White Pine		— 15	@— 22
Timber, Georgia Yellow Pine		— 20	@— 22
Shingles, 18 in	℔ bunch	1 75	@ 2 —
Shingles, Cedar, 3 feet, 1st quality.		25 —	@— —
Shingles, Cedar, 3 feet, 2d quality.		22 —	@23 —
Shingles, Cedar, 2 feet, 1st quality.		17 —	@18 —
Shingles, Cedar, 2 feet, 2d quality.		15 —	@16 —
Shingles, Cypress, 2 feet		13 —	@14 —
Shingles, Company		— —	@28 —
MUSTARD—American		— 16	@— 31
NAILS—Wrought, 6d to 20d	℔ lb.	— 10	@— 12½
Cut 4d to 40d		— 4	@— 4½
PLASTER PARIS—℔ ton		2 12½	@— —
PROVISIONS—Beef, Mess,	℔ bbl.	7 —	@ 8 —
Beef, Prime,		5 75	@ 6 25
Pork, Mess, Ohio		9 50	@ 9 62½
Pork, Prime, Ohio		8 —	@— —
Lard, Ohio	℔ lb.	— 7	@— 8
Hams, Pickled		— 5½	@— 6
Shoulders, Pickled		— 4½	@— 4¾
Sides, Pickled		— —	@— —
Beef, Smoked	℔ lb.	— 8½	@— 9
Butter, Orange County		— 16	@— 18
Butter, Western Dairy		— 13	@— 15
Butter, Grease		— —	@— 7
Cheese, in casks and boxes		— 7	@— 7¾
SEEDS—Clover	℔ lb.	— 7	@— 7½
Timothy	℔ tierce	11 —	@15 —
Flax, Rough		9 25	@ 9 50
SOAP—N. York, Brown	℔ lb.	— 3¾	@— 6
TALLOW—American Rendered		— 8½	@— 9
TOBACCO—Virginia	@ lb.	— 2½	@— 6
North Carolina		— 2½	@— 5
Kentucky and Missouri		— 2½	@— 7
WOOL—Am. Saxony, Fleece,	℔ lb.	— 35	@— 37½
American Full Blood Merino		— 30	@— 32
American ½ and ¾ Merino		— 26	@— 28
American Native and ¼ Merino		— 22	@— 24
Superfine, Pulled		— 25	@— 28

Eli Whitney